# Service Manual

PIONEER
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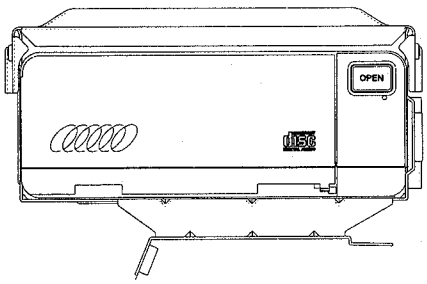


ORDER NO.
**CRT1378**

CD PLAYER

# CDX-M9071ZT
# CDX-M9071ZT-91

COMPACT disc DIGITAL AUDIO

- **These models have been installed in LEXUS ES300.**
- **These models used in combination with KEX-M9071ZT/UC**

| Model | Supplementary Model | Part No. |
|---|---|---|
| CDX-M9071ZT | CDX-M9071ZT-91 | 86270-33010 |

- **Supplementary model is indentical to the original model except for the addition of following items.**

* :Non spare part

| | |
|---|---|
| Carton | CHA1614 |
| Styrofoam | CHP1372 |
| Styrofoam | CHP1420 |
| Cover | CEG1047 |
| Pin(×1) | *CLA1862 |
| Screw(×4) | BMZ40P080FRD |
| Caution Card | *CRM1100 |

- **This additional service manual is designed to be used together with Model CDX-M50/UC Service Manual (CRT1209). Refer to it for disassembly, etc. which are not shown in this manual.**

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# 1. ADJUSTMENT

### 1) Precautions

- The CDX-M9071ZT uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to pin no. 21 (approx. 2.5V) of IC351 (CXA1081Q) instead of GND. (VC or VREF at test point)

If VC and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to VC and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to VC with the channel 2 negative probe connected to GND.

And since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident VC comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing the another key. Otherwise, there is risk of the actuator being destroyed. (For example, do not press the [RPT] key while a disc is being moved from magazine to clamp after regulator is switched ON in steps 3 thru 5 of Tracking Balance Adjustment I. Nor should the [EJECT] key (in M9071ZT) be pressed during focus closed status.)

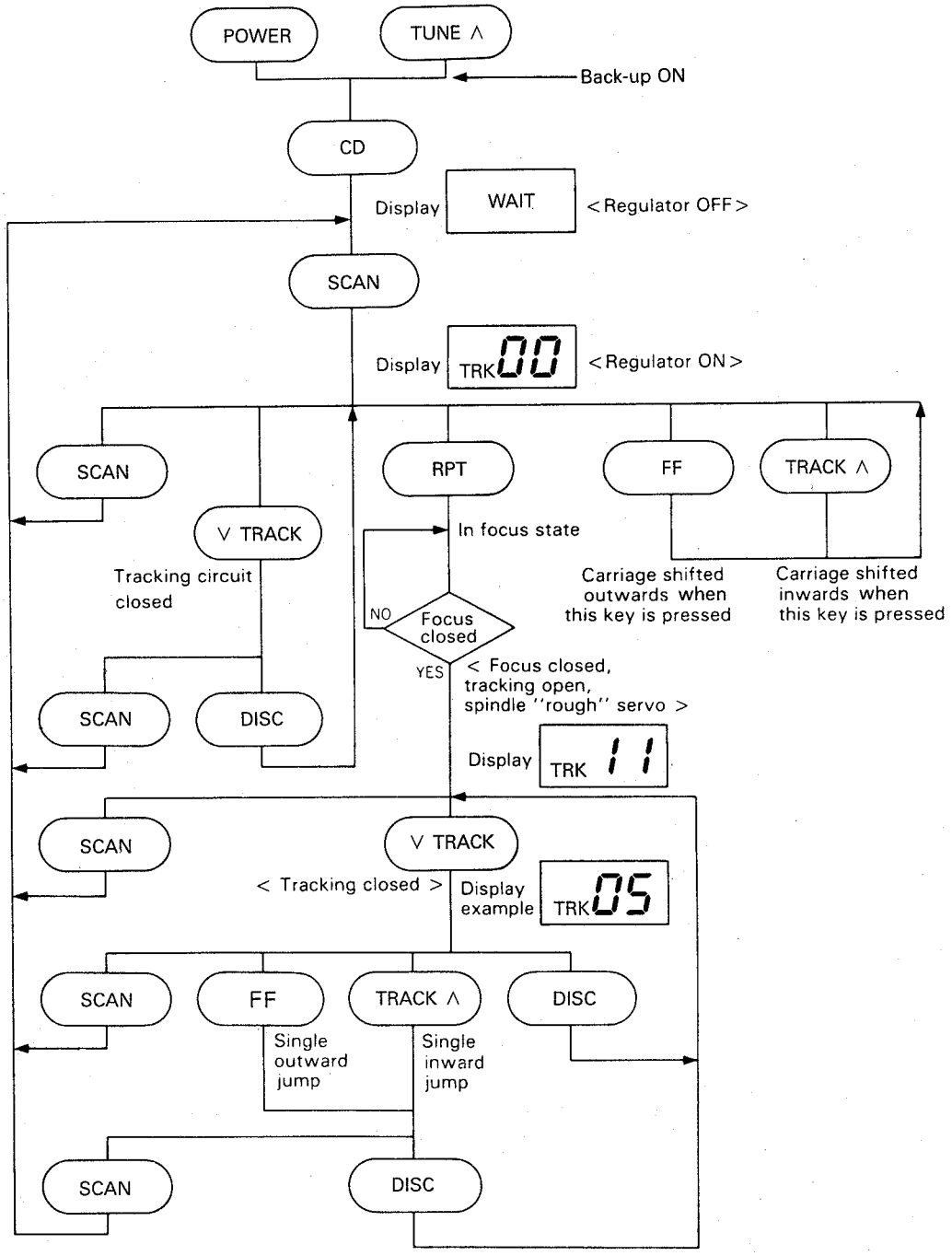
2) Since CDX-M9071ZT is used in combination with a multi-CD control section such as KEX-M9071ZT, all adjustment key operations are executed at that control section.
The KEX-M9071ZT, test mode starting procedure and key operations are included for reference purposes. All keys mentioned in the main text are KEX-M9071ZT keys.

- Test mode starting procedure
  Switch back-up ON while pressing the [POWER] and [TUNE ∧] keys together.
- Test mode cancellation
  Switch the KEX-M9071ZT and CDX-M9071ZT back-up OFF.)

## Key functions during test mode.

| Key | Function |
|---|---|
| SCAN | Regulator ON/OFF |
| FF | FWD kick |
| TRACK ∧ | REV kick |
| ∨ TRACK | Tracking close |
| DISC | Tracking open |
| RPT | Focus close |

## • Flow Chart


POWER
TUNE ∧
Back-up ON
CD
Display
WAIT
<Regulator OFF>
SCAN
Display
TRK 00
<Regulator ON>
SCAN
RPT
FF
TRACK ∧
∨ TRACK
In focus state
Tracking circuit closed
Carriage shifted outwards when this key is pressed
Carriage shifted inwards when this key is pressed
NO
Focus closed
YES
< Focus closed, tracking open, spindle "rough" servo >
SCAN
DISC
Display
TRK 11
SCAN
∨ TRACK
< Tracking closed >
Display example
TRK 05
SCAN
FF
TRACK ∧
DISC
Single outward jump
Single inward jump
SCAN
DISC

## • Adjustment Points

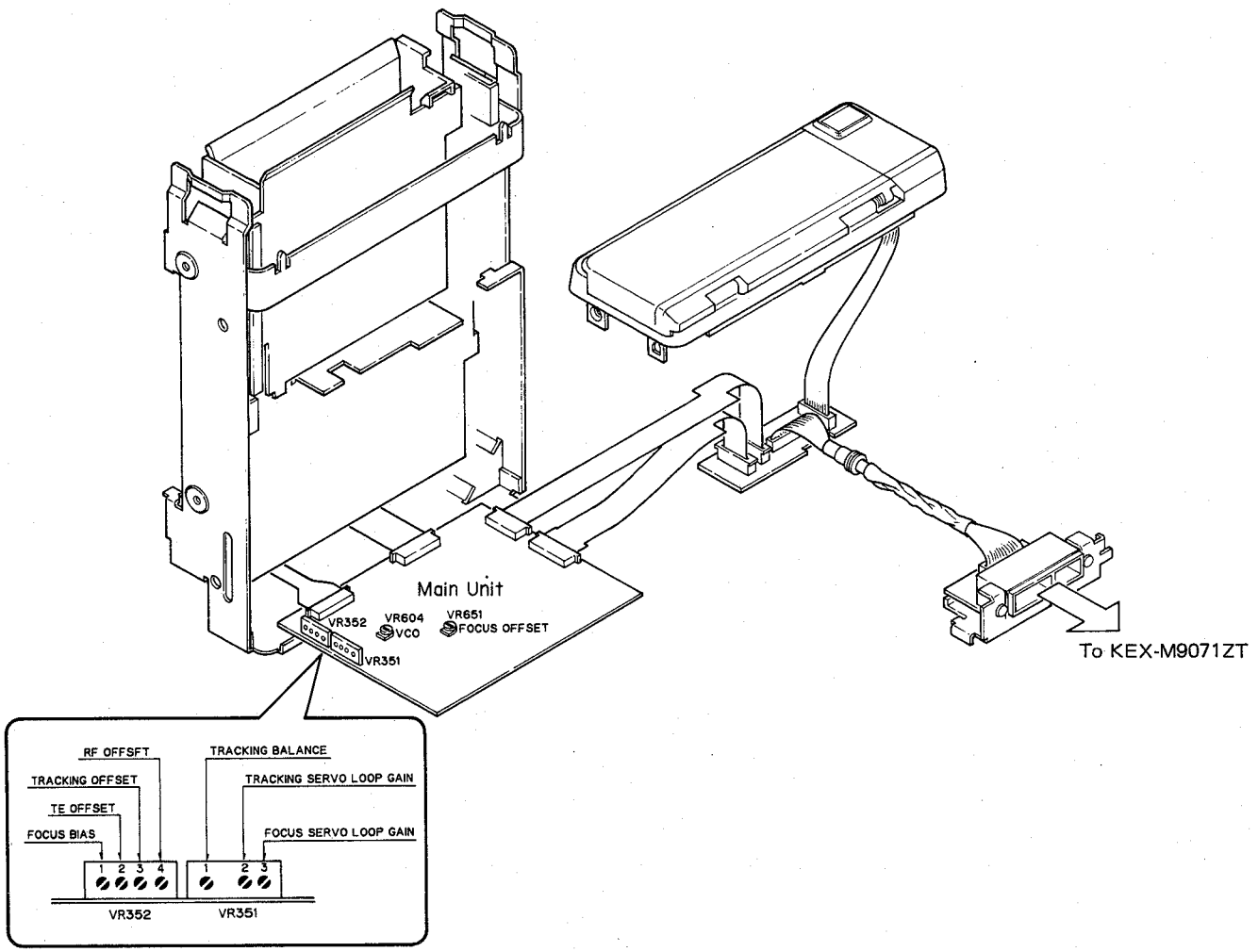



Fig. 1

• **Test Point**

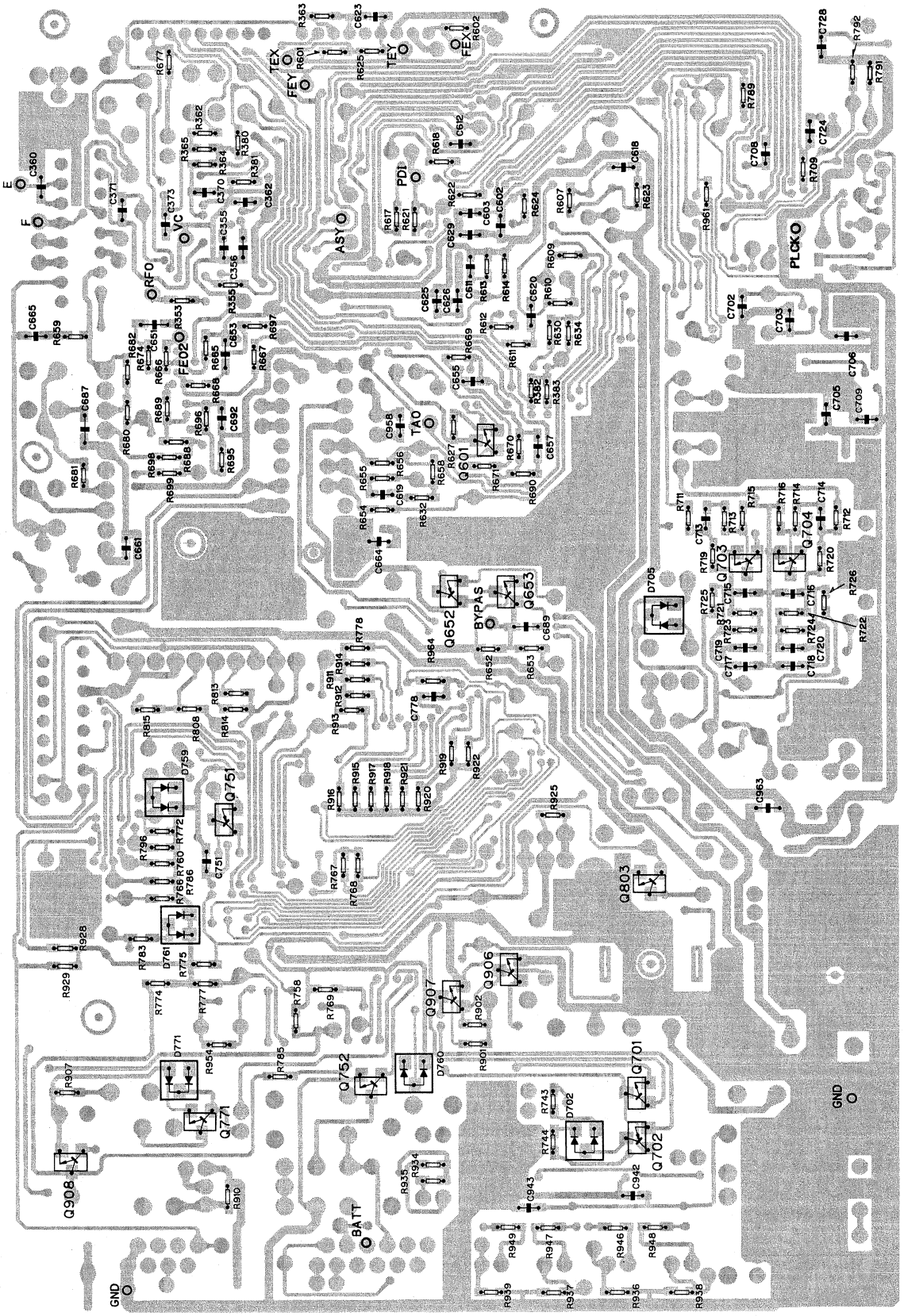



Fig. 2

## 1.1 Focus Offset Adjustment

● Purpose: To adjust the electrical offset of the focus amplifier to zero.

● Maladjustment symptoms: No focus closing

| | |
|---|---|
| ● Measuring equipment/ jigs | • Multi-meter or oscilloscope |
| ● Measuring point | • FEO2 |
| ● Test disc and setting | • Empty magazine, test mode |
| ● Adjustment position | • VR651 |

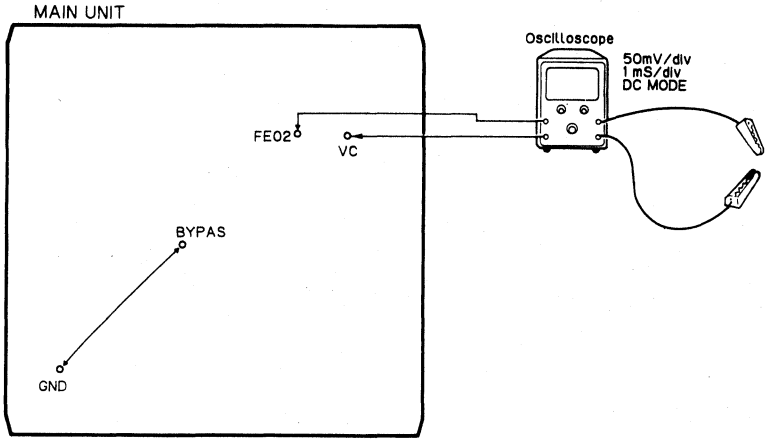



Fig. 3

### Adjustment Procedure

1. Connect BYPAS to GND.
2. Switch regulator ON.
3. Using VR651, adjust the FEO2 DC voltage in reference to VC to a value of 0 ± 25mV.

## 1.2 VCO Free Run Frequency Adjustment

● Purpose: To adjust the EFM decoder reference clock free- run frequency to a suitable value

● Maladjustment symptoms: Spindle lock not possible, distorted sound or no sound at all

| | |
|---|---|
| ● Measuring equipment/ jigs | • Frequency counter |
| ● Measuring point | • Pin No. 70 ($\overline{\text{PLCK}}$) of IC701 (CXD1167Q) |
| ● Test disc and setting | • Empty magazine • Test mode |
| ● Adjustment position | • VR604 |

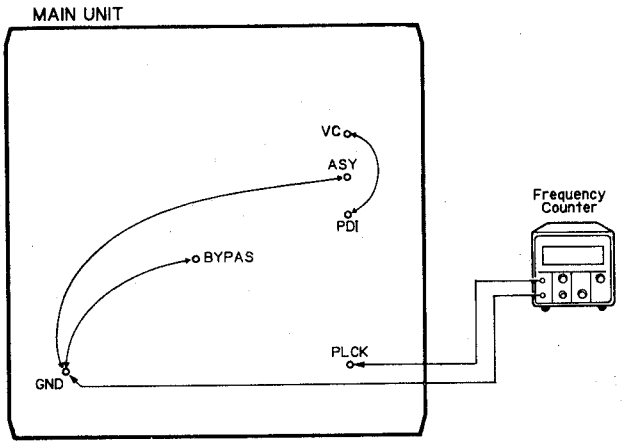



Fig. 4

### Adjustment Procedure

1. Connent pin No. 7 (TP ASY) of IC351 to GND.
   Connect BYPAS to GND.
2. Connect pin no. 1 (TP VC) of IC601 to pin no. 28 (TP PDI).
3. Switch regulator ON while in test mode.
4. Connect the frequency counter to pin No.70 (TP PLCK) of IC701 (CXD1167Q).
5. Adjust VR604 to obtain a frequency of 4.57 ± 0.005MHz.
6. Switch regulator OFF.
7. Disconnect the leads connecting TP VC to TP PDI, and TP ASY to GND.

Note: Connect TP VC and TP PDI with leads kept as short as possible.

Note: Connect the frequency counter ground to TP GND as shown in the figure.

## 1.3 RF Offset Adjustment

● Purpose: To adjust the RF amplifier offset to a suitable value

● Maladjustment symptoms: Focus closure fails readily

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscilloscope |
| ● Measuring point | • RFO |
| ● Test disc and setting | • Empty magazine • Test mode |
| ● Adjustment position | • VR352-4 (RFO) |

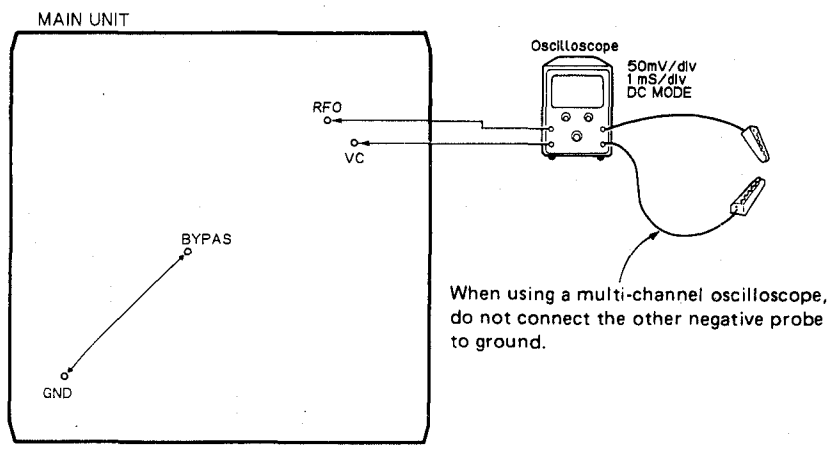



Fig. 5

### Adjustment Procedure

1. Connect BYPAS to GND.
2. Switch regulator ON.
3. Using the oscilloscope, measure the RFO DC voltage in reference to VC, and adjust VR352-4 (RFO) to obtain a reading of +40 ± 10mV.

## 1.4 Tracking Offset Adjustment

● Purpose: To adjust the electrical offset of the tracking amplifier to zero

● Maladjustment symptoms: Search times too long, carriage run-away

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscilloscope |
| ● Measuring point | • TAO low-pass filter output |
| ● Test disc and setting | • Empty magazine • Test mode |
| ● Adjustment position | • VR352-3 (TO) |

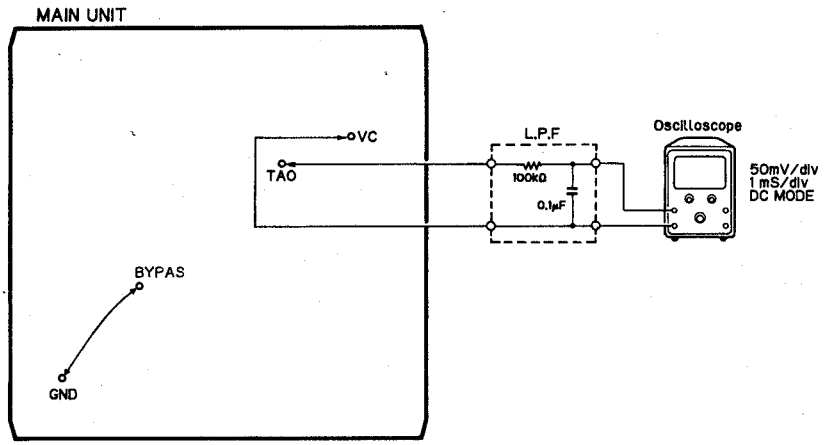



Fig. 6

### Adjustment Procedure

1. Insert a low-pass filter between TAO and VC.
2. Check that BYPAS is connected to GND.
3. Switch regulator ON.
4. Using the oscilloscope, measure the TAO LPF output DC voltage in reference to VC, and adjust VR352-3 (TO) to obtain a reading of 0 ± 25mV.
   The low-pass filter may be left in place for later adjustments.

## 1.5 TE Offset Adjustment - I

● Purpose: To adjust the electrical offset of the tracking servo to zero.

● Maladjustment symptoms: Search times too long, carriage run-away

| | |
|---|---|
| ● Measuring equipment/ jigs | • DC voltmeter |
| ● Measuring point | • TAO low-pass filter output |
| ● Test disc and setting | • Empty magazine • Test mode |
| ● Adjustment position | • VR352-2 (TEO) |

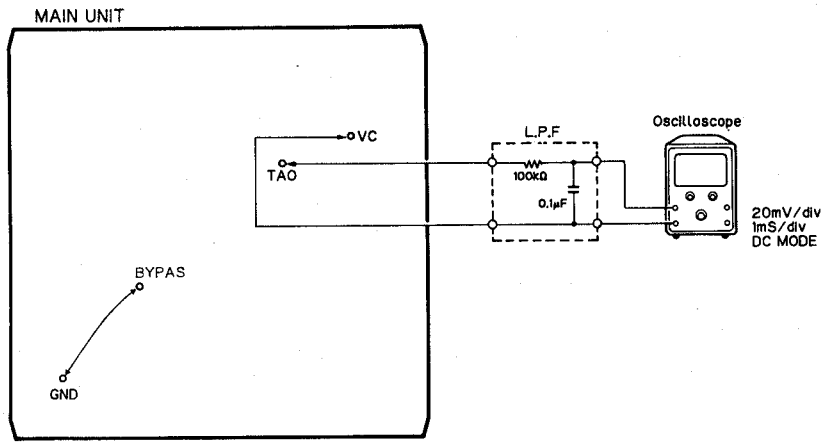



Fig. 7

### Adjustment Procedure

1. Check that BYPAS is connected to GND.
2. Switch regulator ON while in test mode.
3. Press the [V TRACK] key to close tracking.
4. Using VR352-2 (TEO), adjust the TAO LPF output DC voltage in reference to VC to a value of 0 ± 10mV.
5. Switch regulator OFF.

## 1.6 Tracking Balance Adjustment - I

● Purpose: To adjust the tracking servo offset to zero.

● Maladjustment symptoms: Search times too long, poor playability, carriage run-away

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscilloscope |
| ● Measuring point | • TEY (Tracking error signal), low-pass filter output |
| ● Test disc and setting | • SONY TYPE 4 (or TYPE 3) • Test mode |
| ● Adjustment position | • VR351-1 (T. BAL) |

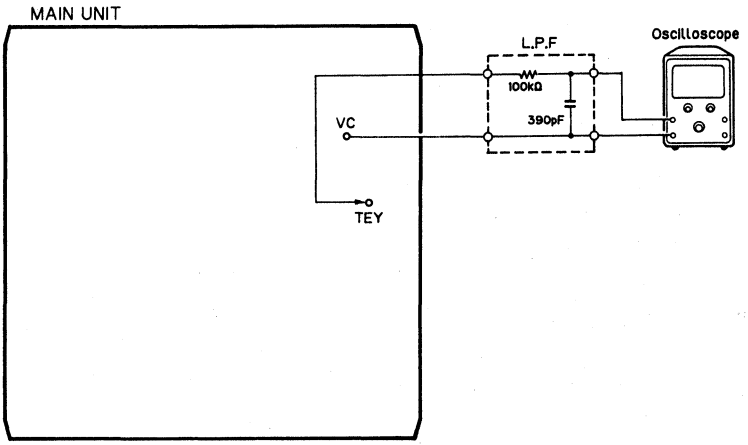
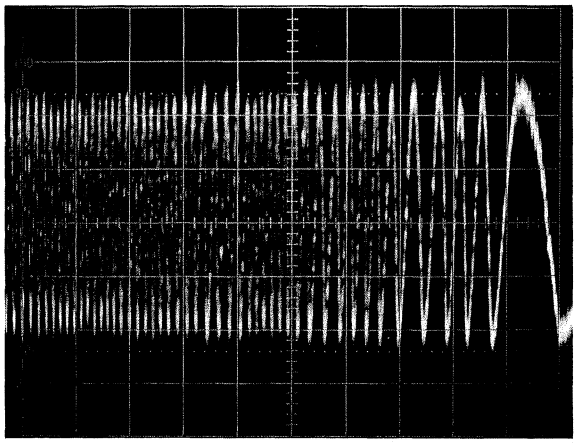



Fig. 8

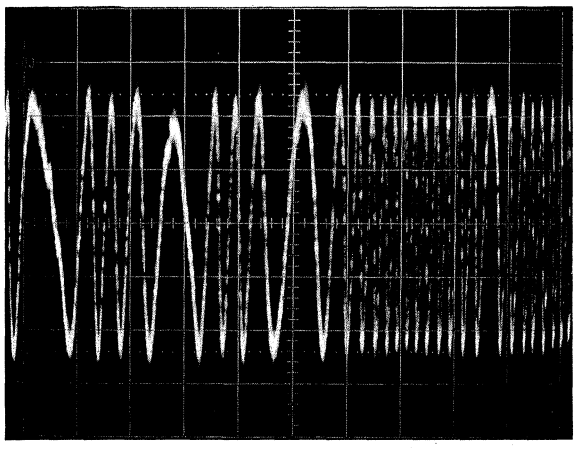
### Adjustment Procedure

1. After checking that regulator is OFF, connect the lowpas filter as shown in the diagram.
2. Disconnect BYPAS from ground.
3. Set the test disc (SONY TAPE 4) in magazine tray 6 and load the magazine. Switch regulator ON.
4. Using the [FF] or [TRACK ∧] key, move the pick-up to about the center of the signal surface.
5. Press the [RPT] key to close focus.
6. Using an oscilloscope, observe the TEY signal in respect to VC. Then adjust VR351-1 (T.BAL) to set the positive and negative amplitudes to the same levels. (See Fig. 9-11)
7. Switch the power OFF.
   The low-pass filter may be left in place for later adjustments.



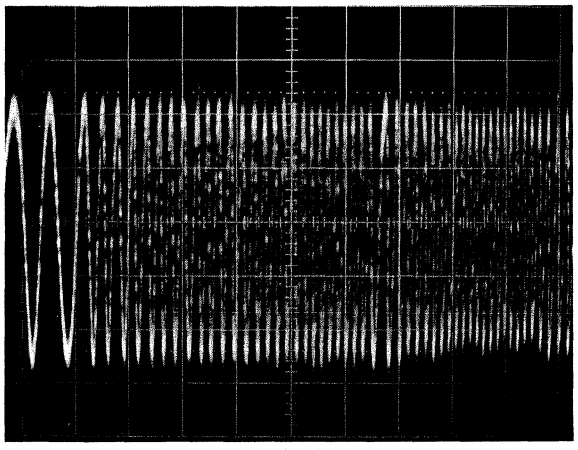
+5% NG

Fig. 9



±0% OK

Fig. 10



−5% NG

10ms/div.
0.2V/div.
DC Mode

Fig. 11

## 1.7 Tangential Skew Check

● Purpose: To check whether tangential skew has been misaligned or not when replacing the pick-ip unit.

● Maladjustment symptoms: No disc playback; track jumping

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscilloscope, screwdriver |
| ● Measuring point | • RFO |
| ● Test disc and setting | • SONY TYPE 4 (or TYPE 3) • Normal mode |
| ● Adjustment position | • Pick-up tangential adjustment screw |

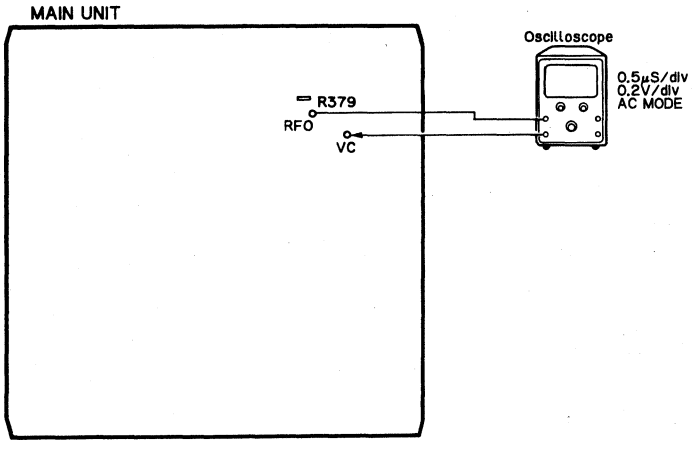
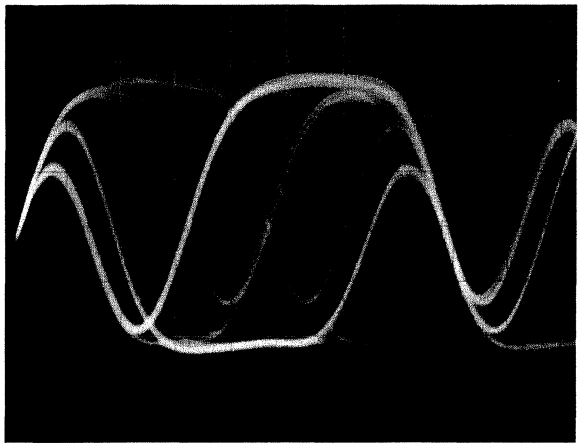


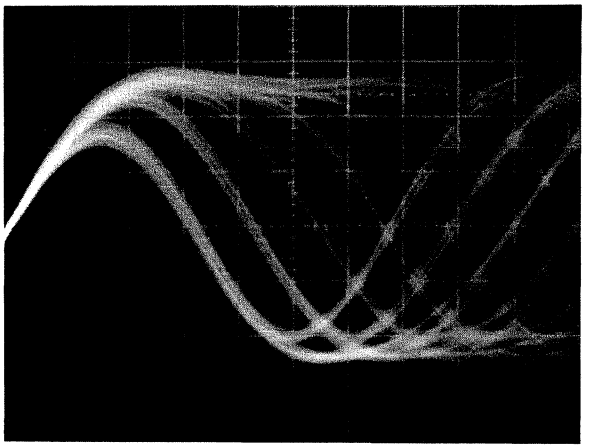

Fig. 12

### Adjustment Procedure (with R379 removed)

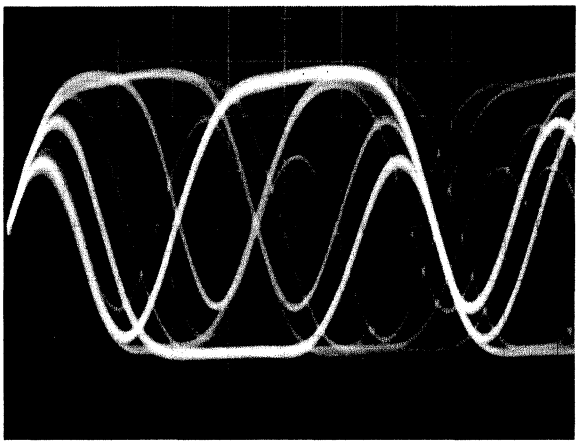
1. Remove R379 (but reconnect after completing adjustment).
2. Play tune TNO 7 in normal mode. (TYPE 3: TNO 23)
3. Check that the valley at the 11T section of the RF waveform is flat.
4. If out of adjustment, readjust to obtain a flat RF waveform. (See Fig. 13-18) Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.)
5. Switch the power OFF and reconnect R379.
6. Apply "screw-lock" to the tangential adjustment screw.
7. After adjusting tangential skew, also adjust the grating.
8. If tangential skew is seriously out of adjustment, carriage stopping and run-away tend to occur in normal mode. In this case,
   a) Switch to test mode,
   b) Shift the pick-up to signal surface center using [FF] or [TRACK ∧] key.
   c) Press the [RPT] key to close focus.
   d) Press the [∨ TRACK] key to close tracking.
   e) Observe RFO in respect to VC, and turn the tangential adjustment screw to obtain a flat waveform at the 11T section.
   f) Repeat the adjustment resuming from step 2.



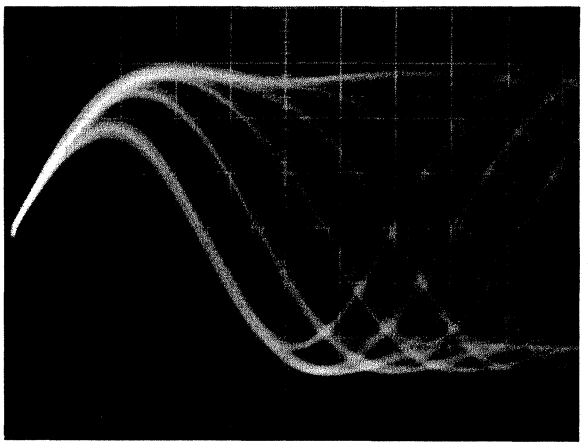
NG **Fig. 13**



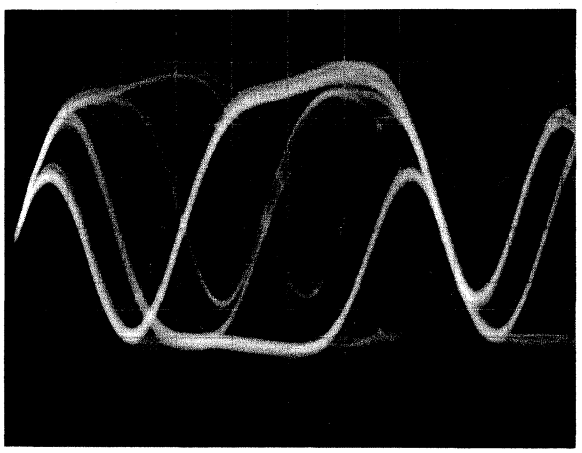
NG **Fig. 14**



OK **Fig. 15**

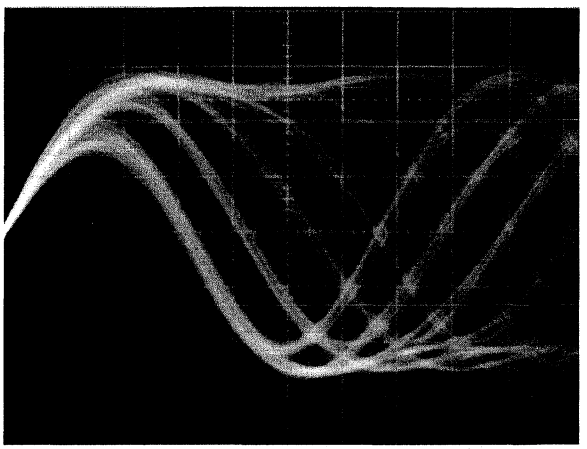


OK **Fig. 16**



NG **Fig. 17**

Play tune TNO 7 (TYPE4)

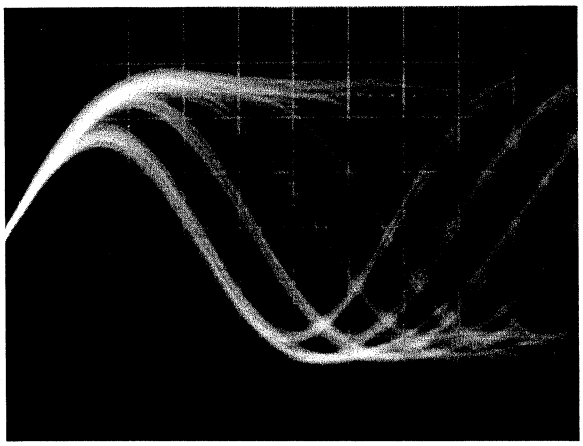


NG **Fig. 18**

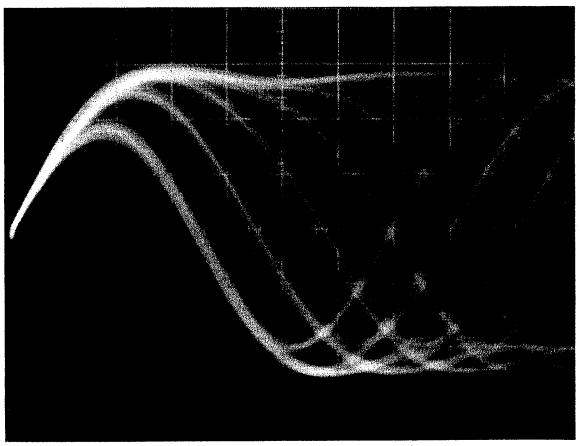
Play tune TN0 12 (TYPE4)

## Adjustment Procedure (without R379 removed)

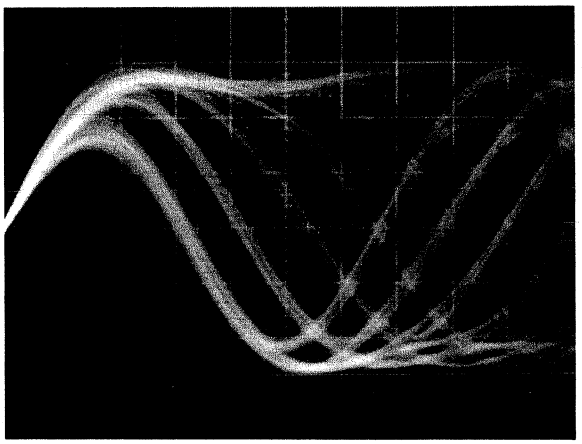
1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Turn the tangential adjustment screw to obtain a good RF waveform eye pattern. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the midway point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) (See Fig. 19-21)
3. Apply "screw-lock" to the tangential adjustment screw.
4. After adjusting tangential skew, also adjust the grating.



NG **Fig. 19**



OK **Fig. 20**



NG **Fig. 21**

## 1.8 Grating Adjustment

● Purpose: The grating may need adjustment in a replaced pick-up assembly.

● Maladjustment symptoms: No disc playback; track jumping

| | |
|---|---|
| ● Measuring equipment/ jigs<br>● Measuring point<br>● Test disc and setting<br>● Adjustment position | • Oscilloscope, clock driver, grating adjustment filter (bandpass filter) (GGF-133) · AC millivoltmeter, two low-pass filters<br>• TEY, E LPF output, F LPF output<br>• SONY TYPE 4 (or TYPE 3) • Test mode<br>• Pick-up grating adjustment hole |

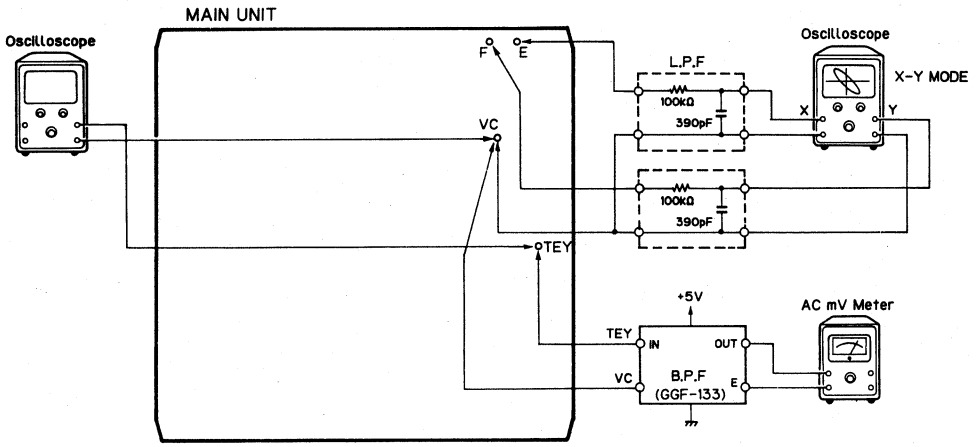



Fig. 22

### Adjustment Procedure

1. Connect a low-pass filter (100k, 390p) to test points E, F, and VC as shown in the above diagram.
2. Switch regulator ON in test mode, and load a disc.
3. Press the [RPT] key to close focus.
4. Press the [∨ TRACK] key to close tracking.
5. Using the [FF] or [TRACK ∧] key, move the pick-up to about the center of the signal surface (tune TNO 6). (TYPE 3: TNO 7)
6. Press the [DISC] key to open tracking.
7. While monitoring the TEY filter output by AC milli- voltmeter, turn the grating adjustment hole slowly. The AC voltage increases and decreases while turning the screw. Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
8. Then while monitoring TEY by oscilloscope, turn the driver slowly clockwise from the null point (as seen from under the pick-up) until the first waveform peak amplitude is reached. (See Fig. 24-29)

9. With the E low-pass filter output connected to the X axis of the oscilloscope, and the F low-pass filter output connected to the Y axis, apply an input in AC mode and observe the Lissajous figure.
10. Using the driver, adjust the Lissajous figure to a single line (or as close as possible).
11. Switch regulator OFF and remove the filters.

**B.P.F. (GGF-133)**

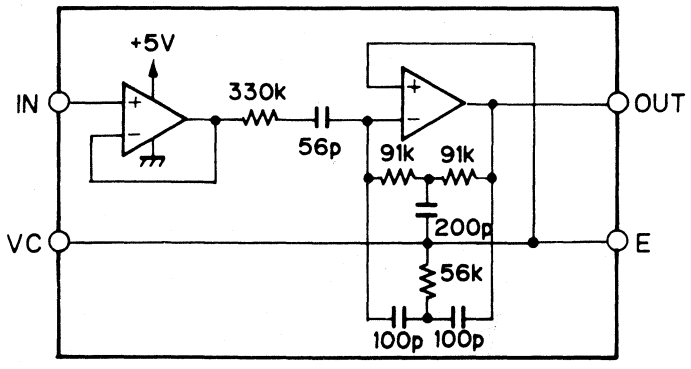



Fig. 23

TEY waveform 10ms/div, 500mV/div

**Null Point**

Lissajous figure (AC input)
Horizontal axis E 20mV/div
Vertical axis F 20mV/div

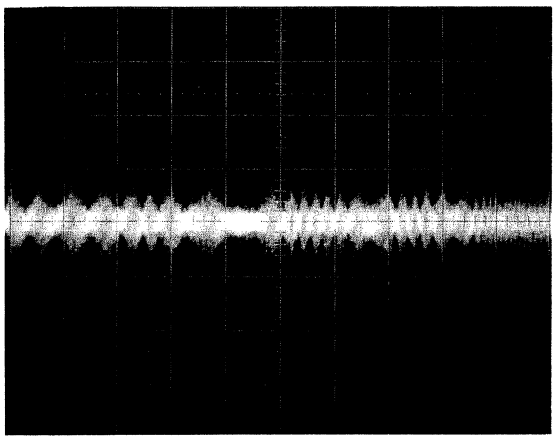


Fig. 24

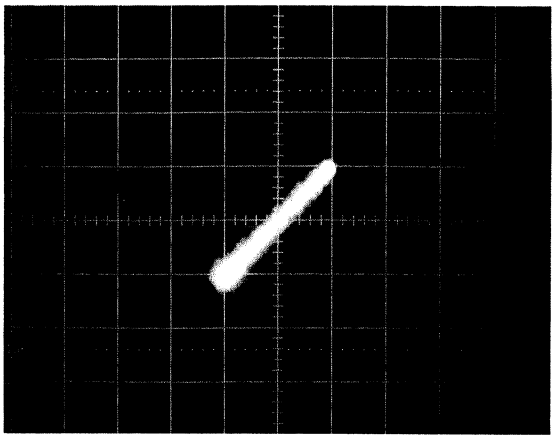


Fig. 25

**"Rough" adjustment**

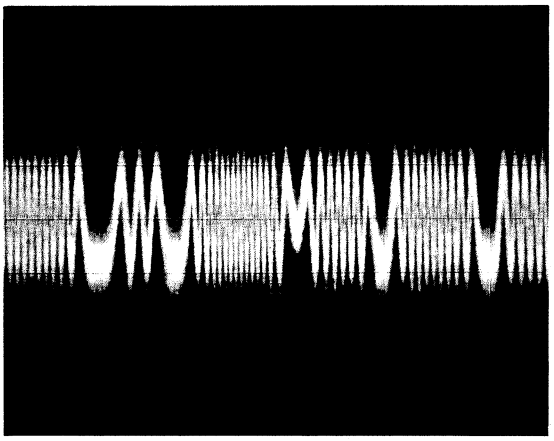


Fig. 26

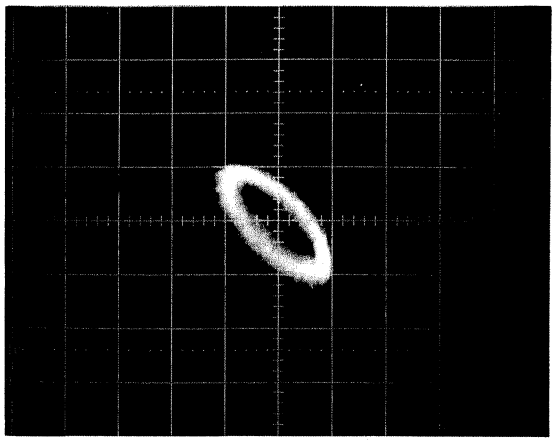


Fig. 27

**Final adjustment**

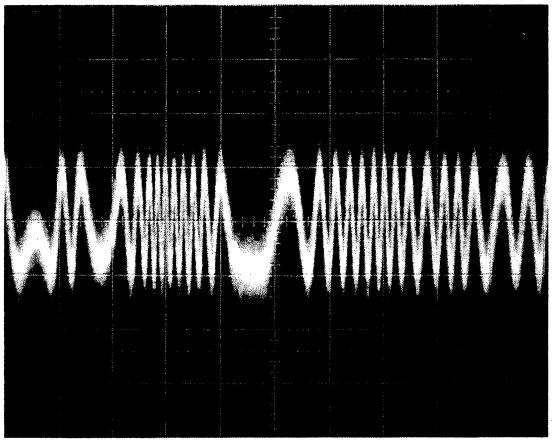


Fig. 28

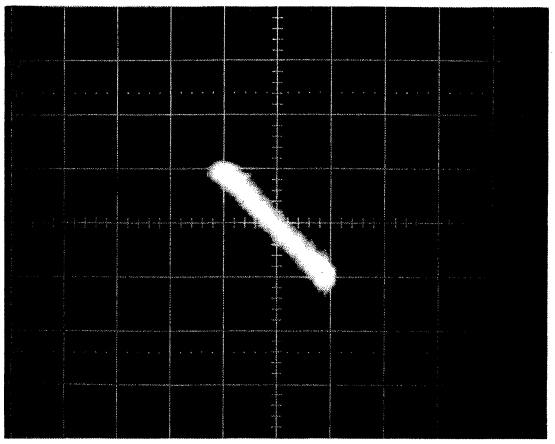


Fig. 29

## 1.9 Focus Bias Adjustment

● Purpose: To adjust the focus servo bias to an optimum value

● Maladjustment symptoms: Focus closing difficulty, poor playability

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscilloscope |
| ● Measuring point | • RFO |
| ● Test disc and setting | • SONY TYPE 4 (or TYPE 3) • Normal mode |
| ● Adjustment position | • VR352-1 (FEB) |

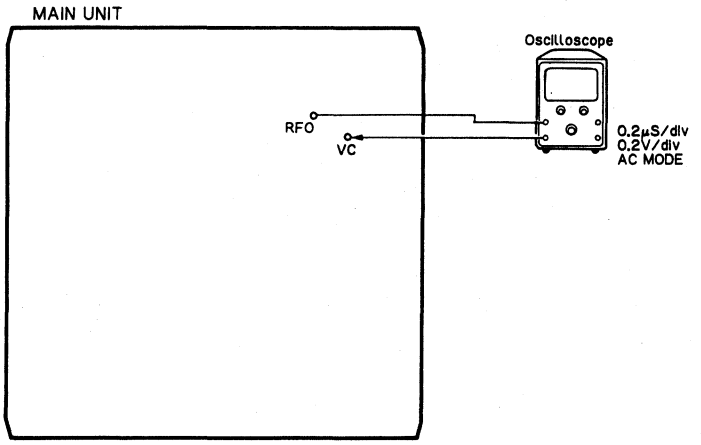
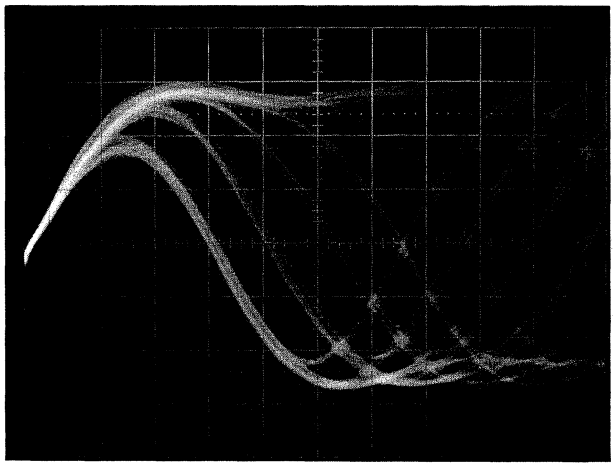


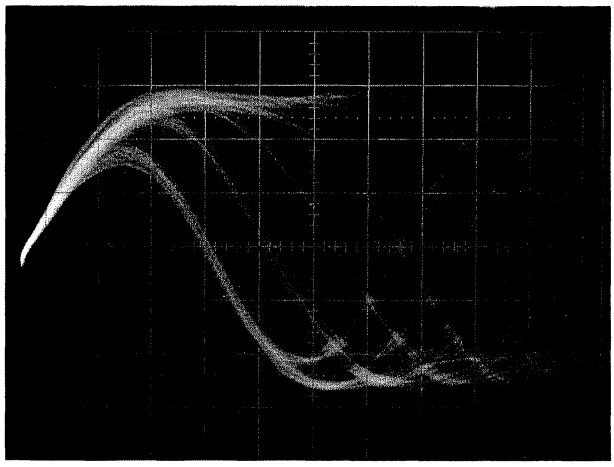

Fig. 30

### Adjustment Procedure

1. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
2. Observe RFO in respect to VC in the oscilloscope, and adjust VR352-1 (FEB) to obtain maximum RF and optimumeye pattern. (See Fig. 31 and 32)



OK Fig. 31



0.2μs/div.
0.2V/div.
AC Mode

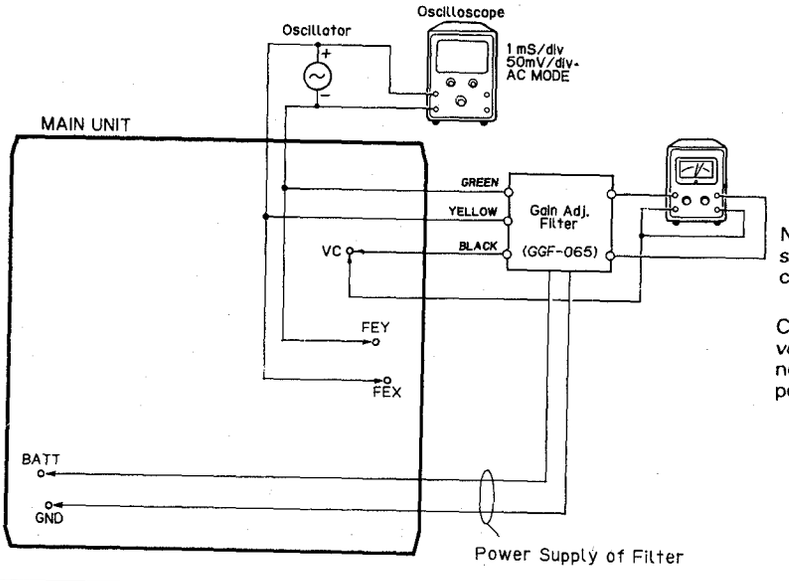
Before adjustment Fig. 32

## 1.10 Focus Servo Loop Gain Adjustment

● Purpose: To adjust the focus servo loop gain to an optimum value

● Maladjustment symptoms: Poor playability, reduced resistance to vibration, focus closure fails readily

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter |
| ● Measuring point | • FEX, FEY |
| ● Test disc and setting | • SONY TYPE 4 (or TYPE 3) • Normal mode |
| ● Adjustment position | • VR351-3 (FG) |




Note: Leave the negative side of the other oscilloscope channel open.

Connect the negative milli-voltmeter lead to VC, and do not connect VC to the power supply ground.

Fig. 33

### Adjustment Procedure

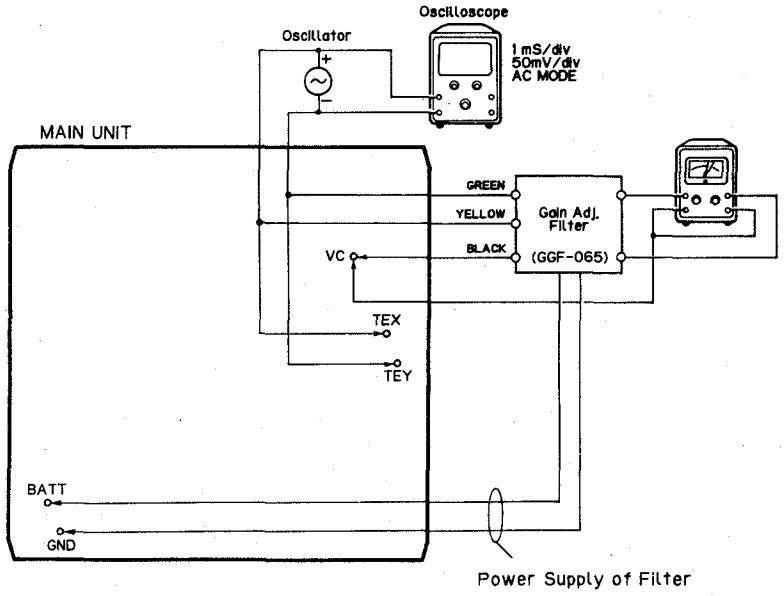
1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1kHz, and observe the FEX/FEY output in the oscilloscope. Adjust the oscillator output to obtain a FEX/FEY output of 100mVp-p.
4. Adjust VR351-3 (FG) to obtain a milli-voltmeter difference of 0 ±0.5dB.

## 1.11 Tracking Servo Loop Gain Adjustment

● Purpose: To adjust the tracking servo loop gain to an optimum value

● Maladjustment symptoms: Poor playability, reduced resistance to vibration

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter |
| ● Measuring point | • TEX, TEY |
| ● Test disc and setting | • SONY TYPE 4 (or TYPE 3) • Normal mode |
| ● Adjustment position | • VR351-2 (TG) |




Note: Leave the negative side of the other oscilloscope channel open.

Connect the negative milli-voltmeter lead to VC, and do not connect VC to the power supply ground.

Fig. 34

### Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 12 in normal mode. (TYPE 3: TNO 14)
3. Set the oscillator to 1.4kHz, and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 100mVp-p.
4. Adjust VR351-2 (TG) to obtain a milli-voltmeter difference of 0 ±0.5dB.

## 1.12 TE Offset Adjustment - II

● Purpose: To adjust the electrical offset of the tracking servo to zero.

● Maladjustment symptoms: Search times too long, carriage run-away

| | |
|---|---|
| ● Measuring equipment/ jigs | • DC voltmeter |
| ● Measuring point | • TAO low-pass filter output |
| ● Test disc and setting | • Empty magazine • Test mode |
| ● Adjustment position | • VR352-2 |

### Adjustment Procedure

Same as for TE offset adjustment - I, but with the DC voltage of the TAO LPF output adjusted to 0 ± 50mV.
The purpose of this additional adjustment is to correct any deviations generated when carrying out the tracking balance and tracking servo loop gain adjustments after completing TE offset adjustment - I.



## 1.13 Tracking Balance Adjustment - II

● Purpose: To adjust the tracking servo offset to zero.

● Maladjustment symptoms: Search times too long, poor playability, carriage run-away

| | |
|---|---|
| ● Measuring equipment/ jigs | • Oscilloscope |
| ● Measuring point | • TEY low-pass filter output |
| ● Test disc and setting | • SONY TYPE 4 (or TYPE 3) • Test mode |
| ● Adjustment position | • VR351-1 |

### Adjustment Procedure

Steps 1 thru 5 same as tracking balance adjustment-I.

6. Check that the level difference between the positive and negative amplitudes of the TEY signal is within 5% (See Fig. 9-11). If greater than 5%, adjust with VR351-1.
7. If further adjustment was necessary in step 6, repeat TE offset adjustment -II.

# 2. BLOCK DIAGRAM

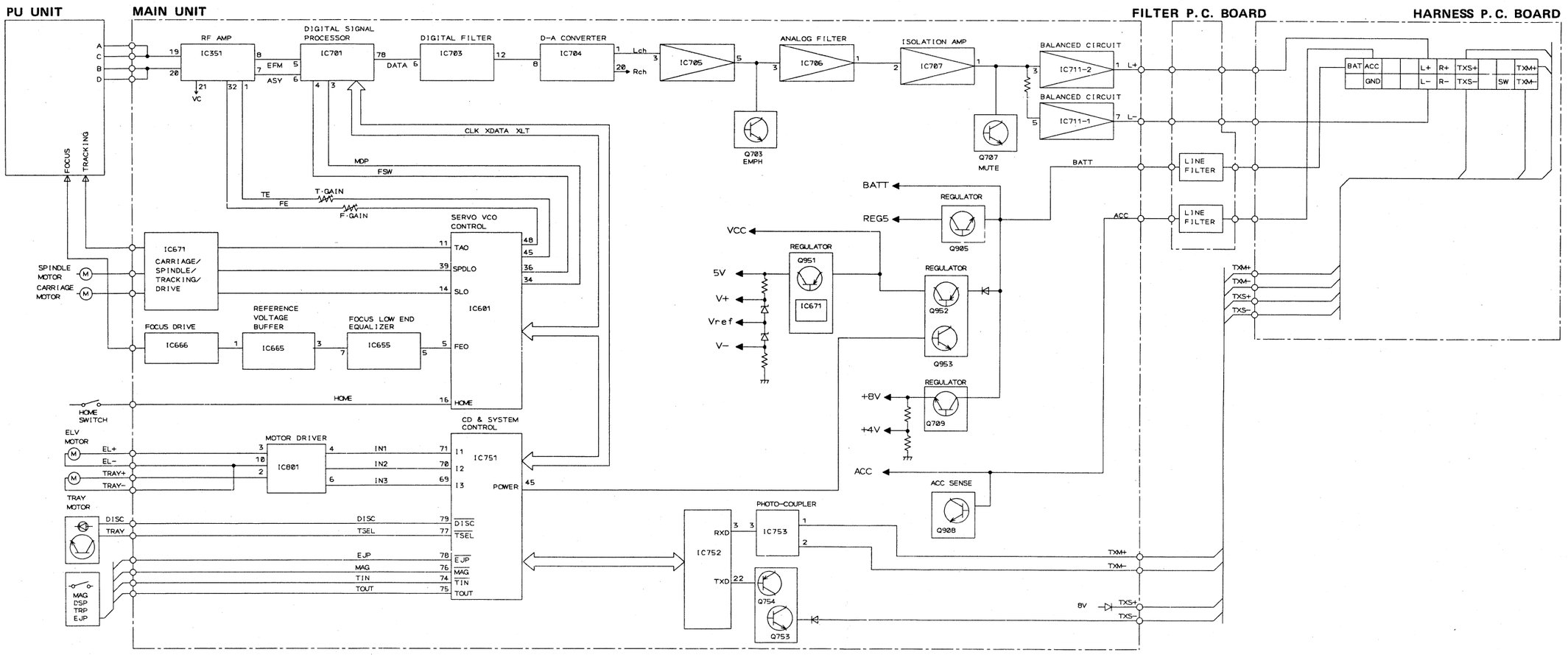
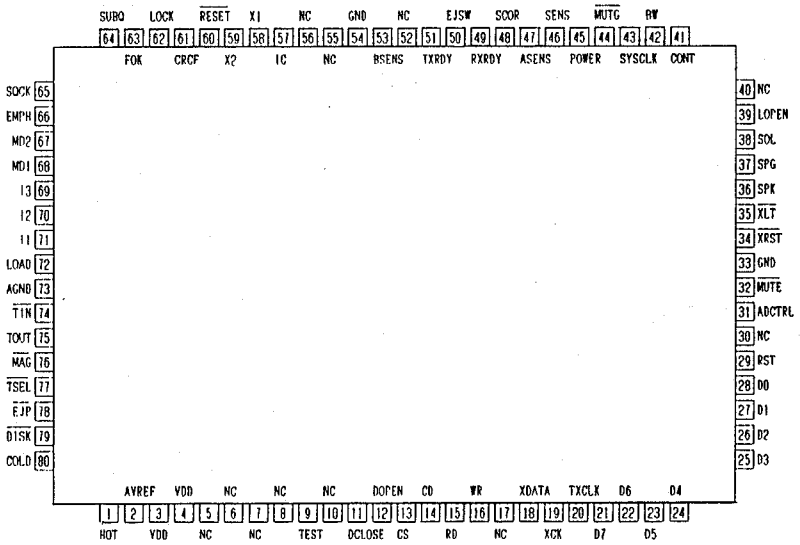



Fig. 35

## ● ICs

IC751:PD4337A



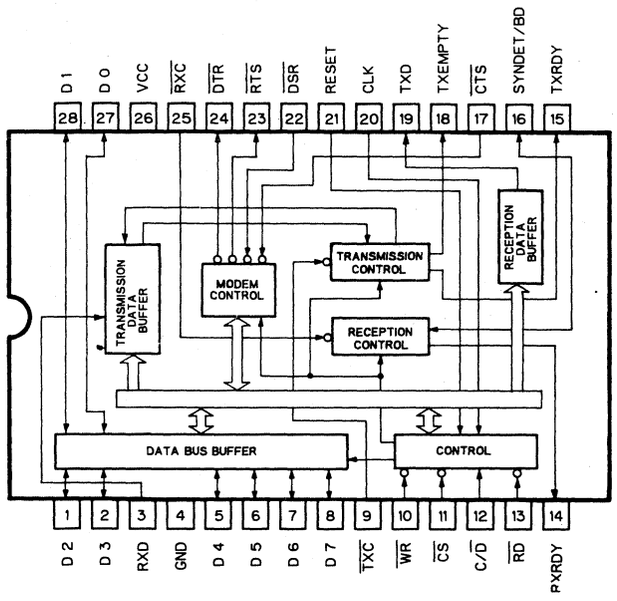

● Pin Functions(PD4337A)

| Pin | Pin name | I/O | Output Format | Function |
|---|---|---|---|---|
| 1 | HOT | input | | High temperature detector |
| 2 | AVREF | | | A/D reference voltage |
| 3 | VDD | | | VDD |
| 4 | VDD | | | VDD |
| 5-8 | NC | | | |
| 9 | TEST | input | | Unit check mode |
| 10 | NC | | | |
| 11 | DCLOSE | input | | Door close sense input |
| 12 | DOPEN | input | | Door open sense input |
| 13 | CS | output | C | Chip select for IC752 |
| 14 | CD | output | C | Command data |
| 15 | RD | output | C | Read signal output |
| 16 | WR | output | C | Write signal output |
| 17 | NC | | | |
| 18 | XDATA | output | C | LSI data |
| 19 | XCK | output | C | LSI clock |
| 20 | TXCLK | output | C | Transmission clock for IC752 |
| 21 \| 28 | D7 \| D0 | input/ output | C | Data for IC752 |
| 29 | RST | output | NH | Reset output for IC752 |
| 30, 52 | NC | | | |
| 31 | ADCTRL | output | NH | AVref control output |
| 32 | $\overline{\text{MUTE}}$ | output | NH | Line mute output |
| 33 | GND | | | |
| 34 | $\overline{\text{XRST}}$ | output | NH | LSI reset |
| 35 | $\overline{\text{XLT}}$ | output | NH | LSI data latch |
| 36 | SPK | output | NH | Spindle kick gain switching |
| 37 | SPG | output | NH | Spindle gain switching |

| Pin | Pin name | I/O | Output Format | Function |
|---|---|---|---|---|
| 38 | SOL | output | C | Door open solenoid output |
| 39 | LOPEN | output | C | Door open LED output |
| 40 | NC | | | |
| 41 | CONT | output | C | Linear driver ON/OFF control output |
| 42 | BW | output | C | Spindle drive circuit range switching |
| 43 | SYSCLK | output | C | System clock output for IC752 |
| 44 | $\overline{\text{MUTG}}$ | output | C | DSP mute output |
| 45 | POWER | output | C | Regurator control output |
| 46 | SENS | input | | CD LSI internal status monitor input |
| 47 | ASENS | input | | ACC power supply sensor input |
| 48 | SCOR | input | | Sub-code synchronization input |
| 49 | RXRDY | input | | Reception request input pin |
| 50 | EJSW | input | | Eject switch input |
| 51 | TXRDY | input/ output | C | Transmission request input pin |
| 53 | BSENS | | | Back up power supply sensor input |
| 54 | GND | | | |
| 55, 56 | NC | | | |
| 57 | IC | | | Connect to GND |
| 58 | X1 | input | | Oscillator input |
| 59 | X2 | output | | Oscillator output |
| 60 | $\overline{\text{RESET}}$ | | | Reset |
| 61 | CRCF | input | | CR check input |
| 62 | LOCK | input | | Spindle lock monitor |
| 63 | FOK | input | | Focus OK |
| 64 | SUBQ | input | | Sub-code data input |
| 65 | SQCK | output | NH | Sub-code clock |
| 66 | $\overline{\text{EMPH}}$ | output | NH | Emphasis selector output |
| 67 | MD2 | output | NH | IC701 mode control. Digital output ON/OFF |
| 68 | MD1 | output | NH | IC701 mode control. Digital output ON/OFF |
| 69 \| 71 | I3 \| I1 | output | NH | Loading motor driver control output |
| 72 | LOAD | output | NH | CD mechanism power supply on/off |
| 73 | AGND | | | A/D converter GND |
| 74 | $\overline{\text{TIN}}$ | input | | Tray position detector switch 1 |
| 75 | TOUT | input | | Tray position detector switch 2 |
| 76 | $\overline{\text{MAG}}$ | input | | Magazine lock switch input |
| 77 | $\overline{\text{TSEL}}$ | input | | Tray position detector photosensor |
| 78 | $\overline{\text{EJP}}$ | | | Eject position switch |
| 79 | $\overline{\text{DISK}}$ | | | Disc detector input |
| 80 | COLD | | | Low temperature detector |

| Output Format | Meaning |
|---|---|
| C | C-MOS |
| NH | High resistivity N channel open drain |

IC752 : MSM82C51A-2GS




# 3. CONNECTOR FUNCTION DESCRIPTION

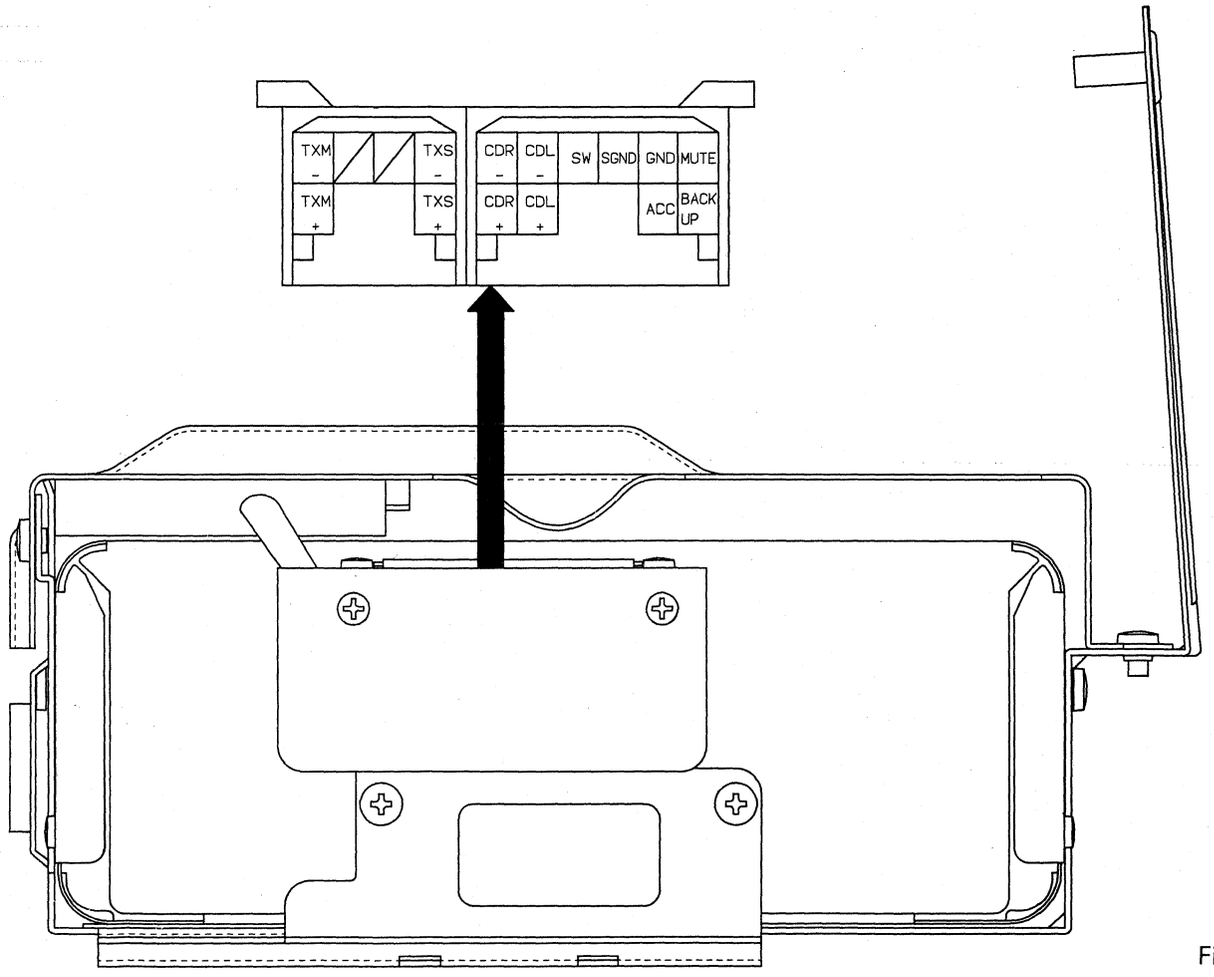
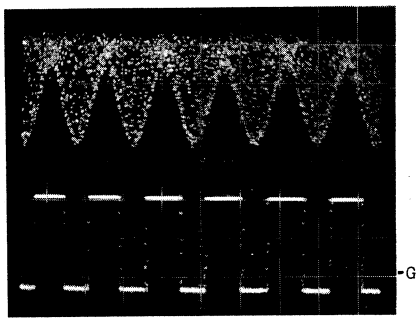



Fig. 36

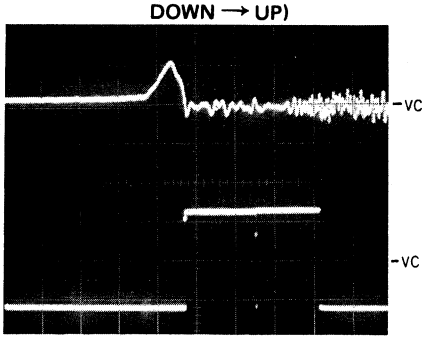
Note: 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage
G: GND VC: Pin 21 of CXA1081Q (2.5V)

## ● Wave Forms

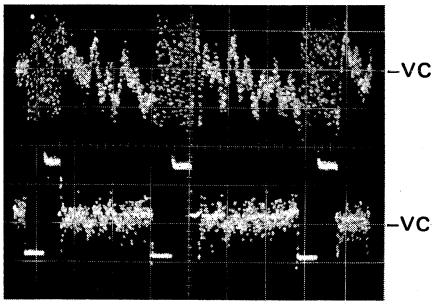
① CH1: RFO 0.4V/div. 0.4ms/div.
② CH2: MIRR 2V/div.
Test mode: Tracking open



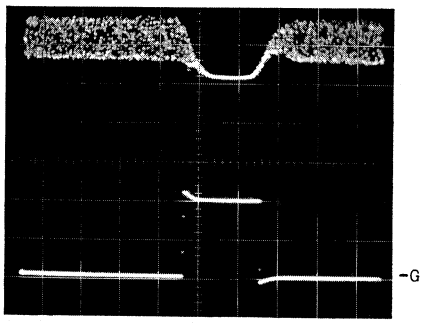

⑦ CH1: FEY 1V/div. 4ms/div.
⑧ CH2: SENS 2V/div.
Normal mode: Focus close (The lens moves DOWN → UP)



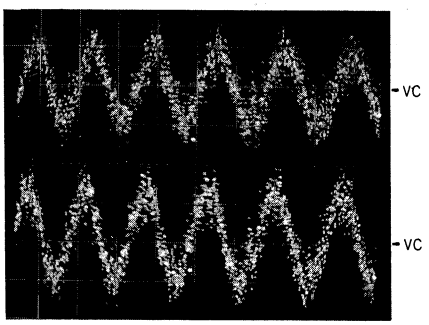

⑨ CH1: TEY 0.4V/div. 4ms/div.
⑪ CH2: TAO 0.4V/div.
Normal mode: Track search (80 track jump)



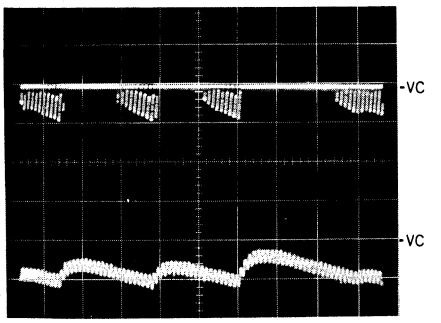

① CH1: RFO 1V/div. 0.4ms/div.
③ CH2: DFCT 2V/div.
Normal mode: The defect part passes 800μm.



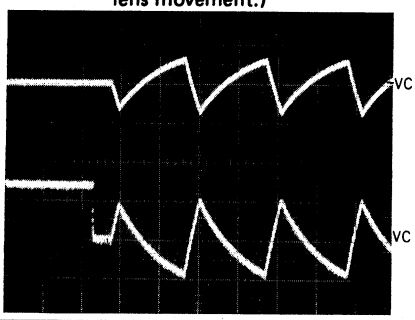

⑨ CH1: TEY 0.4V/div. 0.4ms/div.
⑩ CH2: TZC 0.4V/div.
Test mode: Tracking open



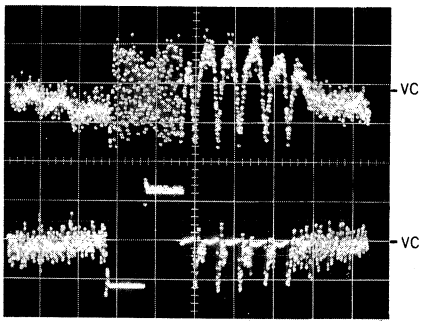

⑫ CH1: SLO 0.4V/div. 2S/div.
⑬ CH2: ATSC 0.02V/div.
Normal mode: PLAY



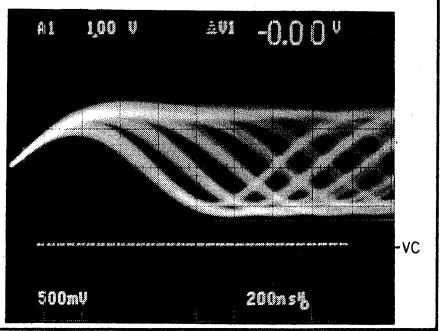

④ CH1: FEO 0.2V/div. 0.4S/div.
⑤ CH2: Pin 7 of CXA1082BQ 0.1V/div.
Test mode: Connect the FOK2 to GND. Focus search is performed. (CH1 is the same phase as the lens movement.)



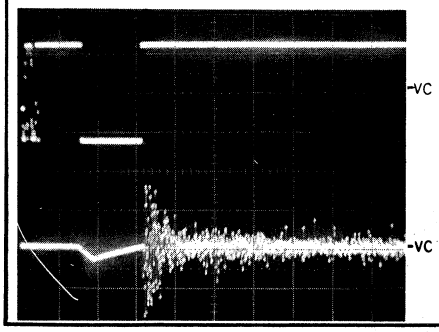

⑨ CH1: TEY 0.4V/div. 2ms/div.
⑪ CH2: TAO 0.4V/div.
Normal mode: Brake wave form when track search is performed.



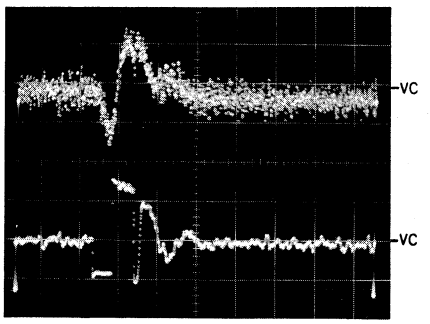

① RFO 0.5V/div. 200ns/div.
Normal mode: PLAY



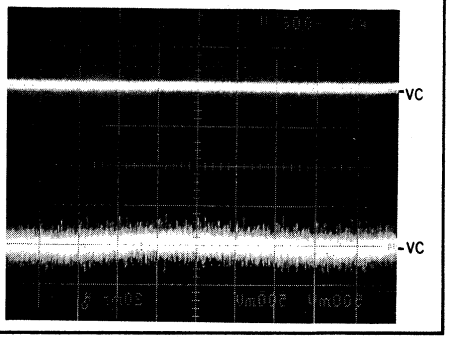

⑥ CH1: FOK2 2V/div. 0.2S/div.
④ CH2: FEO 0.4V/div.
Normal mode: Focus close



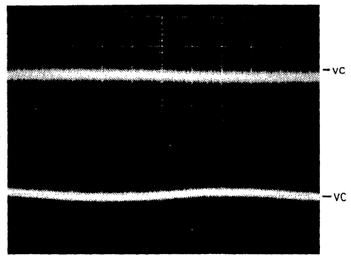

⑨ CH1: TEY 0.4V/div. 0.4ms/div.
⑪ CH2: TAO 0.4V/div.
Test mode: Single jump



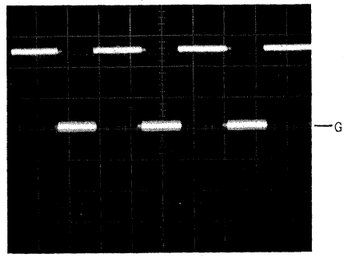

⑦ CH1: FEY 0.5V/div. 20ms/div.
⑭ CH2: FEO2 0.5V/div.
Normal mode: PLAY



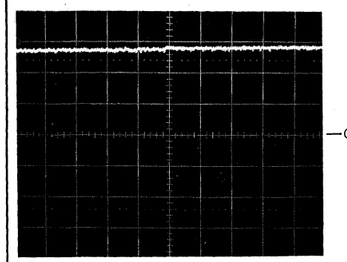
⑨ CH1: TEY 0.5V/div.
⑪ CH2: TAO 0.5V/div. 20ms/div.
Normal mode: PLAY



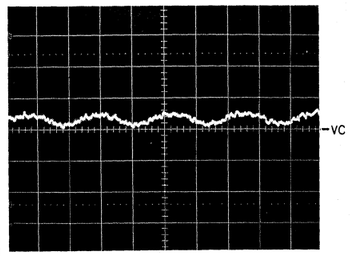

⑰ MDS 2V/div. 50μs/div.
PLAY



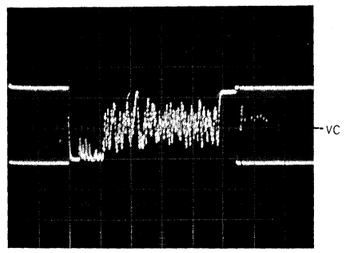

⑲ GFS 2V/div. 200μs/div.
PLAY



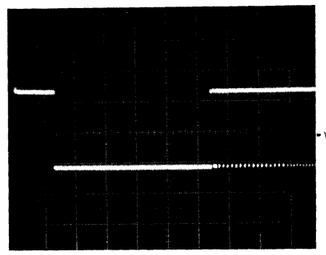

⑮ SPDLO 2V/div. 50ms/div.
PLAY



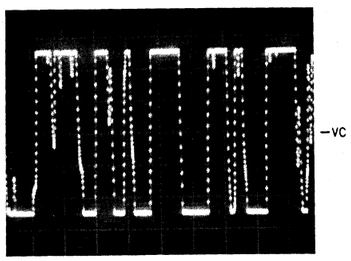

⑰ MDS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



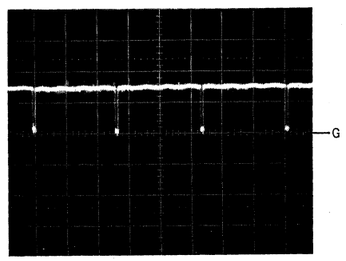

⑲ GFS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



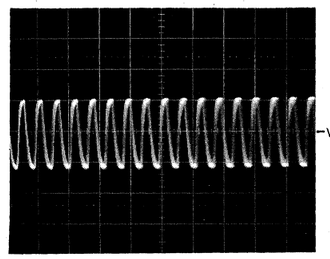

⑮ SPDLO 2V/div. 40ms/div.
12cm DISC TRACK COUNT SEARCH



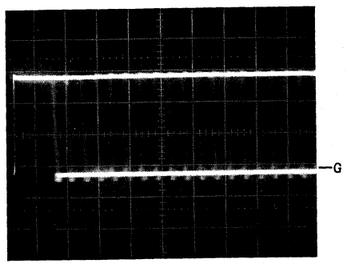

⑱ MDP 2V/div. 200μs/div.
PLAY



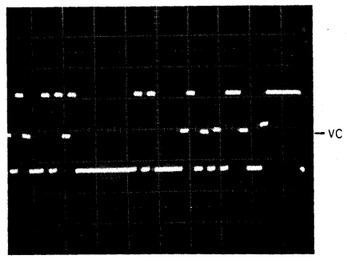

⑳ VCOO 2V/div. 0.2μs/div.
PLAY



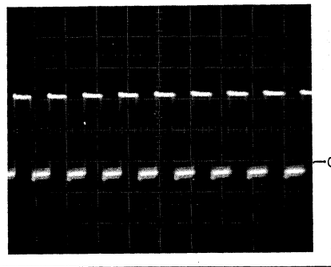

⑯ EFM 2V/div. 0.5μs/div.
PLAY




⑱ MDP 2V/div. 10ms/div.
TRACK COUNT SEARCH

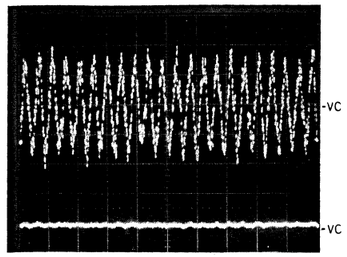



㉑ PLCK 2V/div. 0.2μs/div.
PLAY

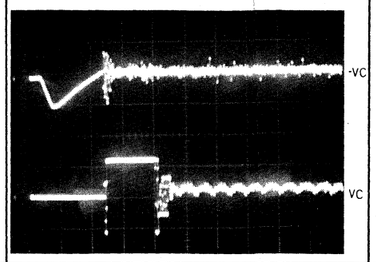




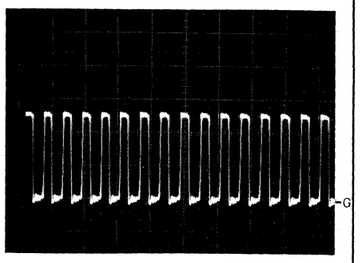

⑨CH1 : TEY 0.4V/div.
⑪CH2 : TAO 0.4V/div. 0.2ms/div.
TRACK COUNT SEARCH



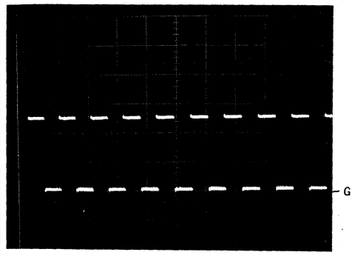

⑭CH1 : FEO2 1V/div.
⑮CH2 : SPDLO 1V/div. 0.2S/div
After 8cm disc loaded



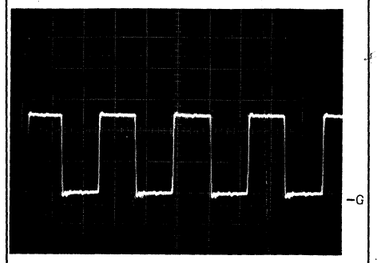

㉗BCLK2(IC704 Pin 9)
2V/div. 0.2μs/div.



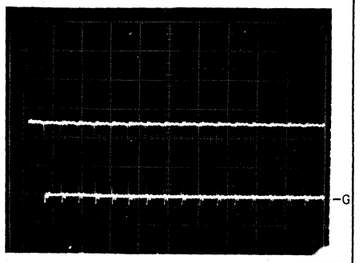

㉙LRCK(IC704 Pin 6)
2V/div.5μs/div.



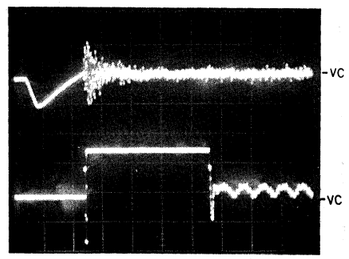

㉓BCLK1(IC703 Pin 7)
2V/div. 0.2μs/div.



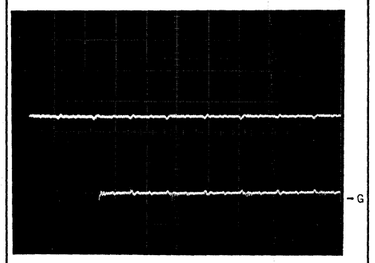

㉘DATA2(IC704 Pin 8)
2V/div. 0.2μs/div.



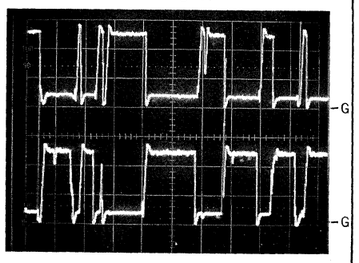

⑭CH1 : FEO2 1V/div.
⑮CH2 : SPDLO 1V/div. 0.2S/div.
After 12cm disc loaded



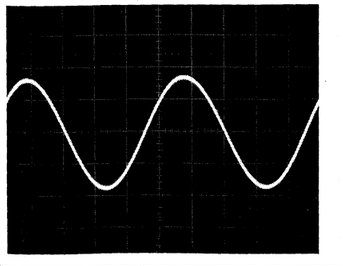

㉕DATA1(IC703 Pin 6)
2V/div. 0.2μs/div.



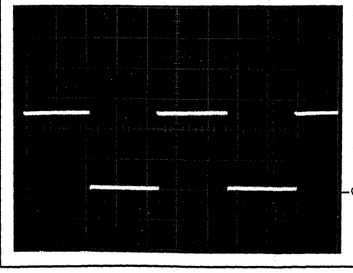

㉚ CH1: S+
㉛ CH2: S− 2V/div. 20ms/div
Test mode: Focus close
tracking Open



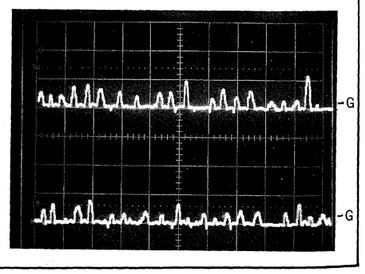

㉔L or R out 0.5V/div. 0.2ms/div.
PLAY(When 1kHz FS)



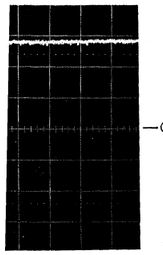
㉖LRCK1(IC703 Pin 5)
2V/div. 5μs/div.



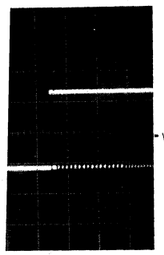

㉜ CH1: T+
㉝ CH2: T− 1V/div. 0.2ms/div.
Normal mode: PLAY



v.
./div.



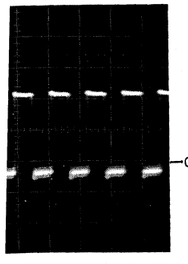

liv.
/div.
IT SEARCH



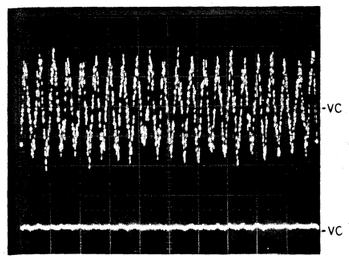

'div.
us/div.



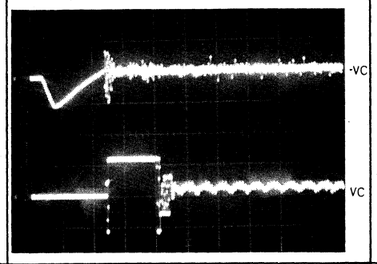

'/div.
2μs/div.



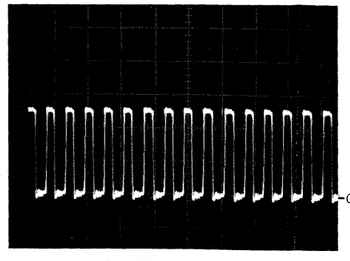

⑨CH1 : TEY 0.4V/div.
⑪CH2 : TAO 0.4V/div. 0.2ms/div.
**TRACK COUNT SEARCH**



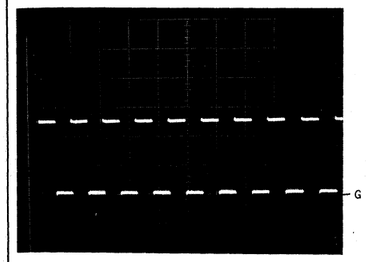

⑭CH1 : FEO2 1V/div. 0.2S/div
⑮CH2 : SPDLO 1V/div.
**After 8cm disc loaded**



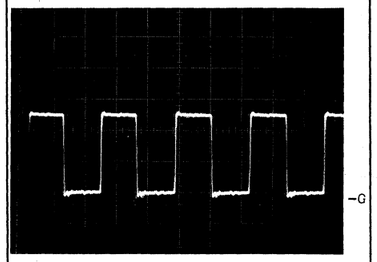

㉗ **BCLK2(IC704 Pin 9)**
2V/div. 0.2μs/div.



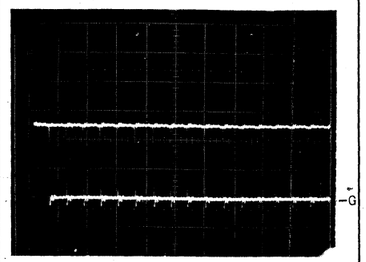

㉙ **LRCK(IC704 Pin 6)**
2V/div.5μs/div.



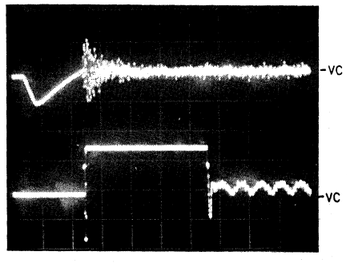

㉓ **BCLK1(IC703 Pin 7)**
2V/div.0.2μs/div.



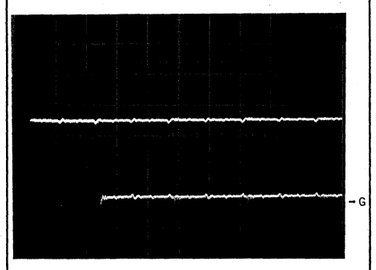

㉘ **DATA2(IC704 Pin 8)**
2V/div.0.2μs/div.



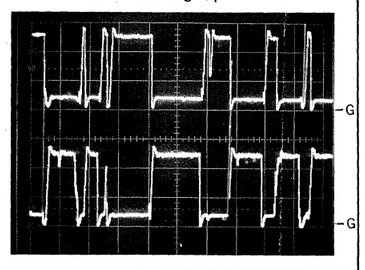

⑭CH1 : FEO2 1V/div.
⑮CH2 : SPDLO1V/div. 0.2S/div.
**After 12cm disc loaded**



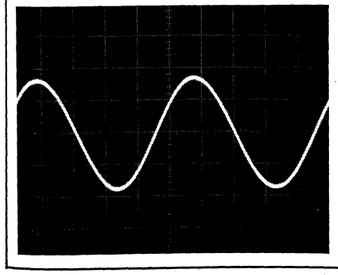

㉕ **DATA1(IC703 Pin 6)**
2V/div.0.2μs/div.



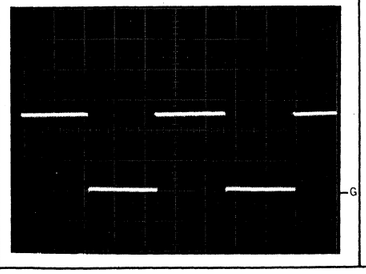

㉚ CH1: S+
㉛ CH2: S− 2V/div. 20ms/div
Test mode: Focus close
tracking Open



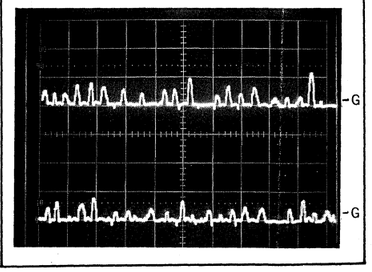

㉔ **L or R out 0.5V/div.0.2ms/div.**
**PLAY(When 1kHz FS)**



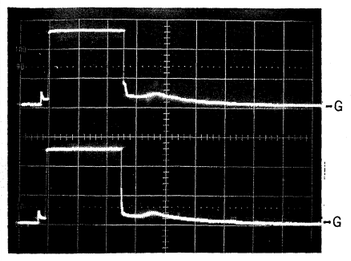
㉖ **LRCK1(IC703 Pin 5)**
2V/div. 5μs/div.



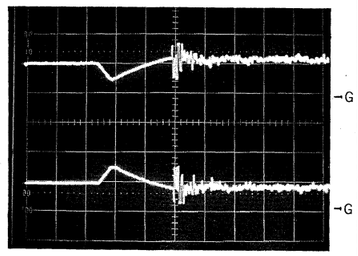

㉜ CH1: T+
㉝ CH2: T− 1V/div. 0.2ms/div.
Normal mode: PLAY



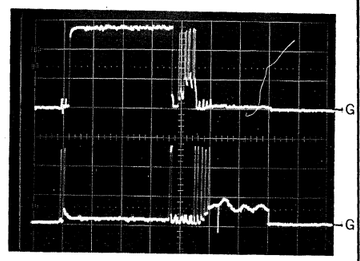

㉞ CH1: F+
㉟ CH2: F− 2V/div. 0.5S/div.
Regulator ON/OFF



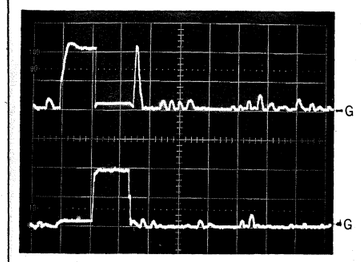

㉞ CH1: F+
㉟ CH2: F− 5V/div. 0.2S/div.
Focus close



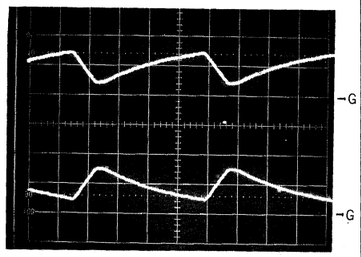

㊱ CH1: C+
㊲ CH2: C− 2V/div. 0.5S/div.
Normal mode: TNO1→TNO23 jump



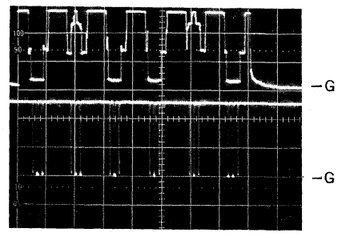

㉜ CH1: T+
㉝ CH2: T− 2V/div. 0.2ms/div.
Single jump forward



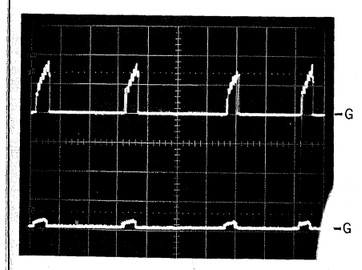

㉞ CH1: F+
㉟ CH2: F− 5V/div. 0.2S/div.
Search



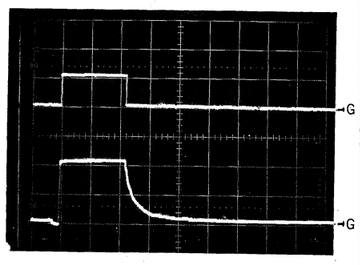

㊵ CH1: DISC
㊶ CH2: TIN 2V/div. 20ms/div.
Tray 1, 3, 4, 6: DISC (12cm DISC)
Tray 2, 5 : NO DISC



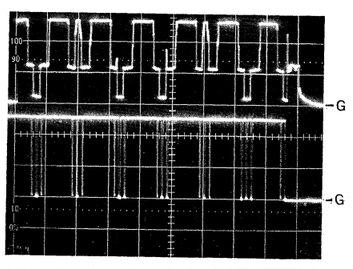

㊱ CH1: C+
㊲ CH2: C− 1V/div. 2S/div.
Normal PLAY



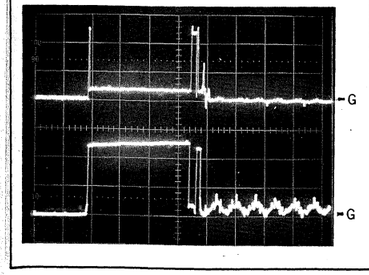

㊳ CH1: CONT
㊴ CH2: VD 5V/div. 0.5S/div.
Normal mode: Power ON/OFF



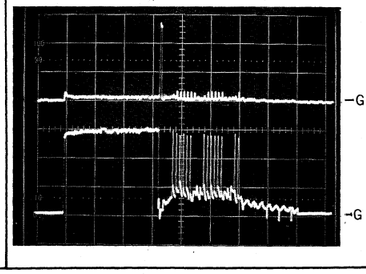

㊵ CH1: DISC
㊶ CH2: TIN 2V/div. 20ms/div.
Tray 1, 3, 4, 6: DISC (8cm DISC)
Tray 2,5 : NO DISC



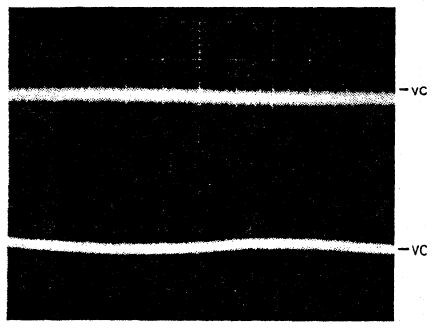

㉚ CH1: S+
㉛ CH2: S− 2V/div. 0.2S/div.
Normal mode: Power ON



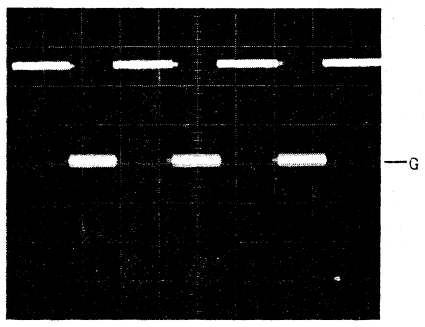

㊱ CH1: C+
㊲ CH2: C− 2V/div. 0.5S/div.
Normal mode: TNO23→TNO1 jump



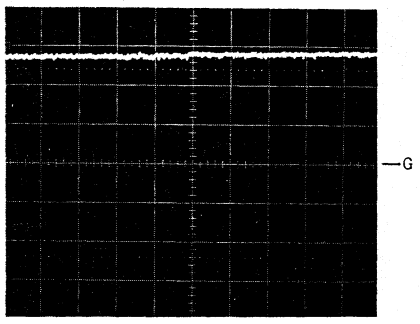
⑨ CH1: TEY 0.5V/div.
⑪ CH2: TAO 0.5V/div. 20ms/div.
Normal mode: PLAY



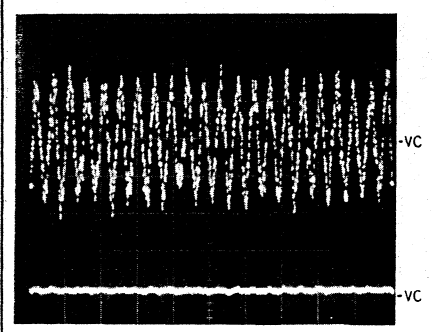

⑰ MDS 2V/div. 50μs/div.
PLAY



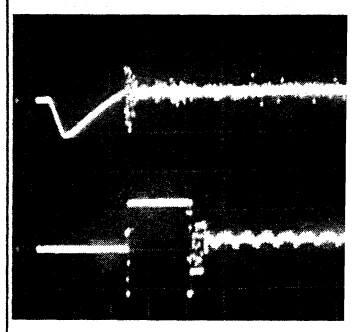

⑲ GFS 2V/div. 200μs/div.
PLAY



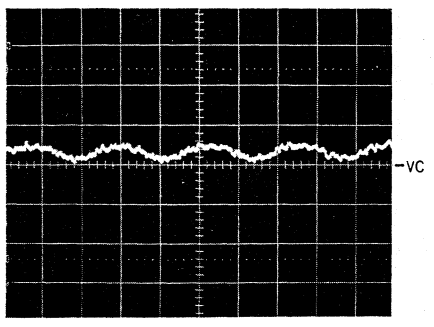

⑨CH1 : TEY 0.4V/div.
⑪CH2 : TAO 0.4V/div. 0.2ms/ div.
TRACK COUNT SEARCH



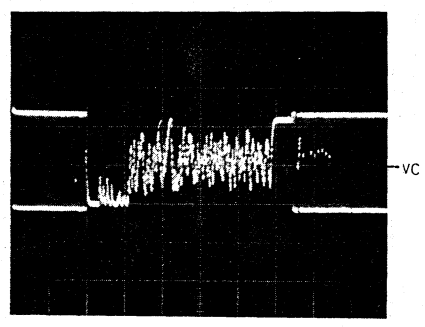

⑭CH1 : FEO2 1V/div.
⑮CH2 : SPDLO 1V/div. 0.2S/div
After 8cm disc loaded



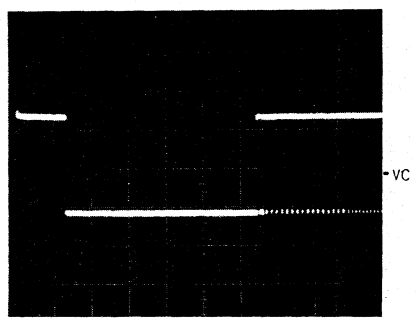
⑮ SPDLO 2V/div. 50ms/div.
PLAY



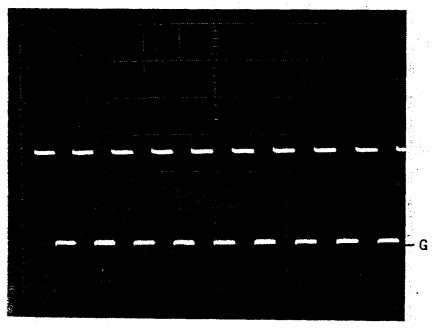

⑰ MDS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



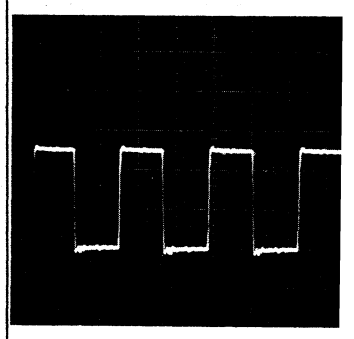

⑲ GFS 2V/div. 0.4S/div.
TRACK COUNT SEARCH



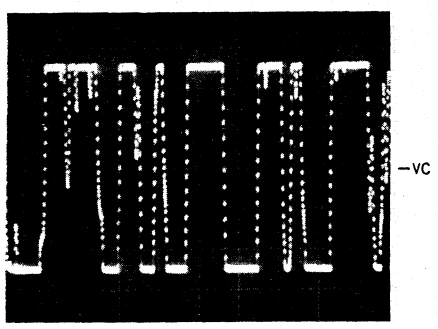

㉙LRCK(IC704 Pin 6)
2V/div. 5μs/div.



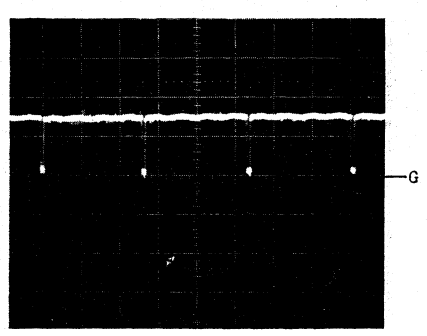

㉓BCLK1(IC703 Pin 7)
2V/div. 0.2μs/div.



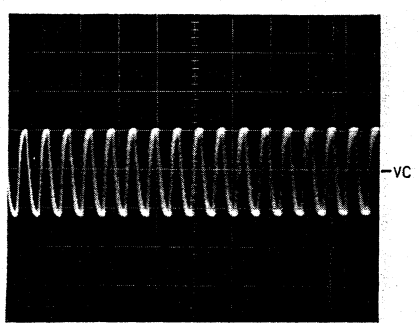
⑮ SPDLO 2V/div. 40ms/div.
12cm DISC TRACK COUNT SEARCH



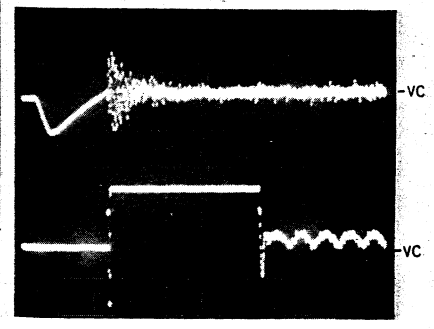

⑱ MDP 2V/div. 200μs/div.
PLAY



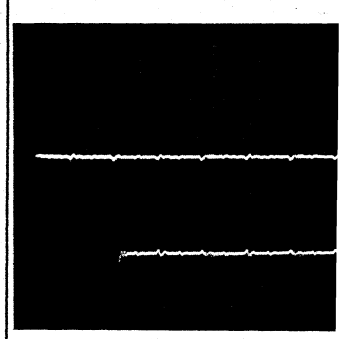

⑳ VCOO 2V/div. 0.2μs/div.
PLAY



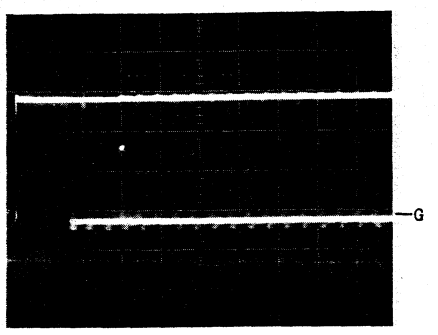

⑭CH1 : FEO2 1V/div.
⑮CH2 : SPDLO1V/div. 0.2S/div.
After 12cm disc loaded



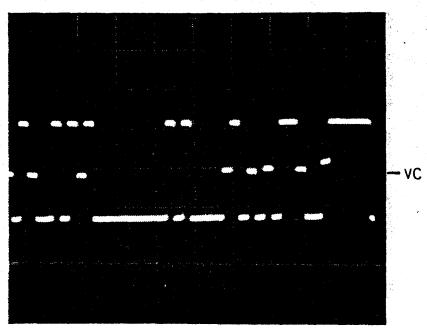

㉕DATA1(IC703 Pin 6)
2V/div. 0.2μs/div.



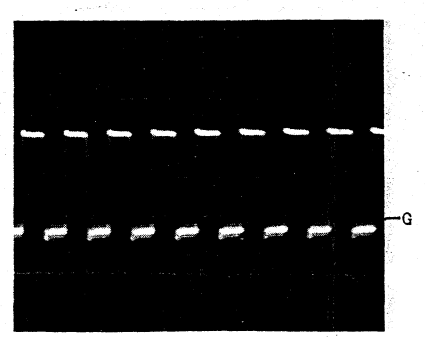
⑯ EFM 2V/div. 0.5μs/div.
PLAY



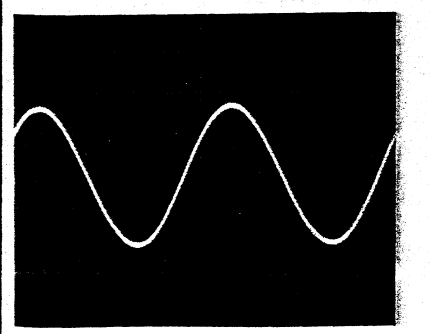

⑱ MDP 2V/div. 10ms/div.
TRACK COUNT SEARCH



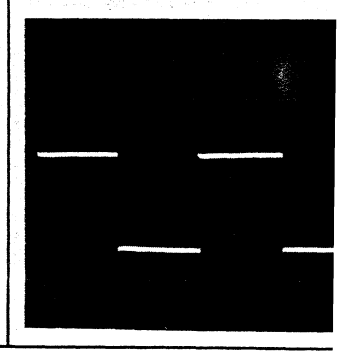

㉑ PLCK 2V/div. 0.2μs/div.
PLAY



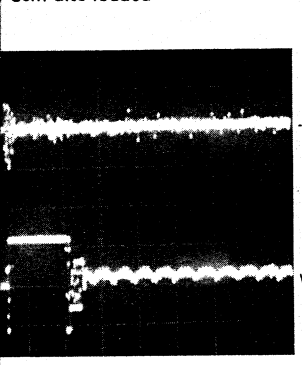

㉔L or R out 0.5V/div. 0.2ms/div.
PLAY(When 1kHz FS)



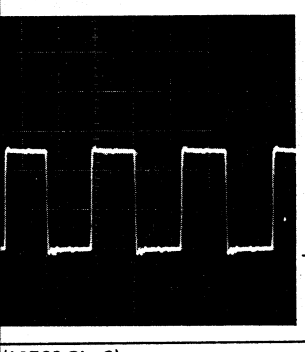
㉖LRCK1(IC703 Pin 5)
2V/div. 5μs/div.



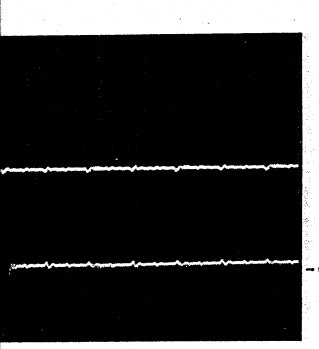
O2 1V/div.
DLO 1V/div. 0.2S/div
8cm disc loaded



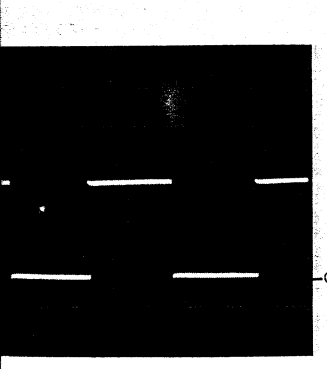

IC703 Pin 7)
0.2μs/div.



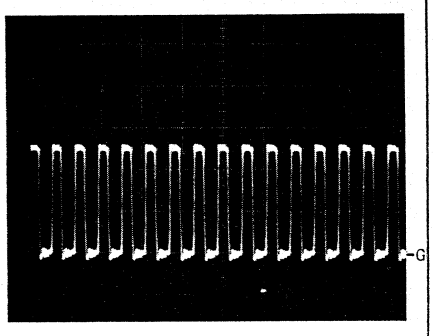

(IC703 Pin 6)
0.2μs/div.



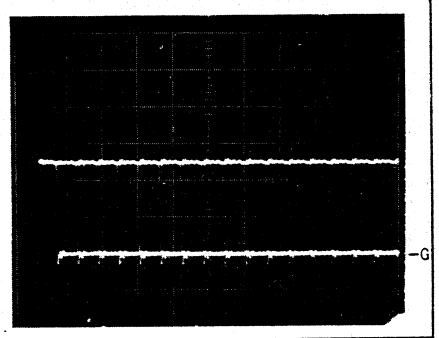

(IC703 Pin 5)
5μs/div.



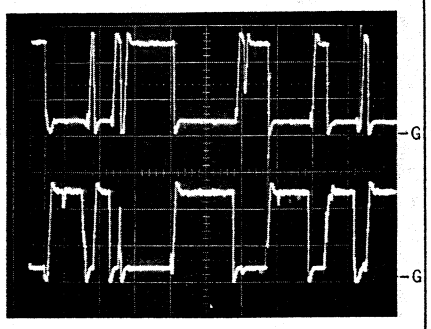

㉗ BCLK2(IC704 Pin 9)
2V/div. 0.2μs/div.



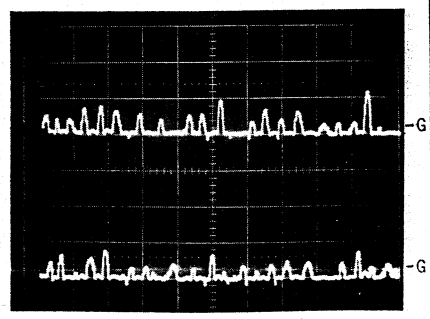

㉘ DATA2(IC704 Pin 8)
2V/div. 0.2μs/div.



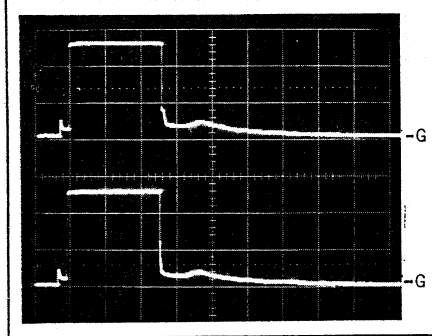

㉚ CH1: S+
㉛ CH2: S− 2V/div. 20ms/div
Test mode: Focus close
tracking Open




㉜ CH1: T+
㉝ CH2: T− 1V/div. 0.2ms/div.
Normal mode: PLAY

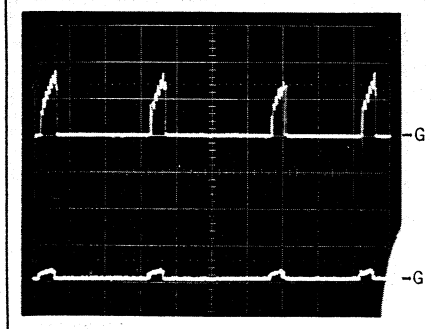



㉞ CH1: F+
㉟ CH2: F− 2V/div. 0.5S/div.
Regulator ON/OFF

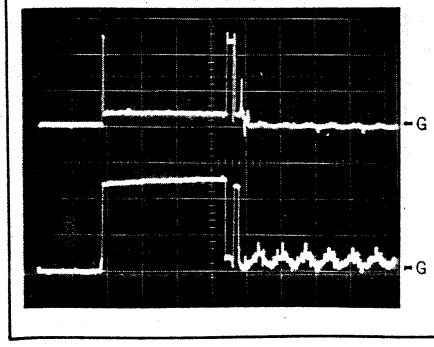



㉜ CH1: T+
㉝ CH2: T− 2V/div. 0.2ms/div.
Single jump forward

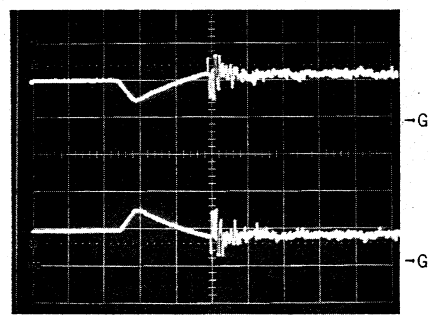
㊱ CH1: C+
㊲ CH2: C− 1V/div. 2S/div.
Normal PLAY



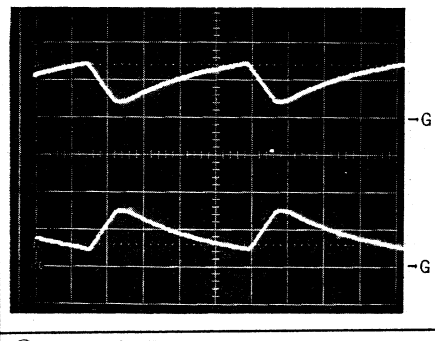

㉚ CH1: S+
㉛ CH2: S− 2V/div. 0.2S/div.
Normal mode: Power ON



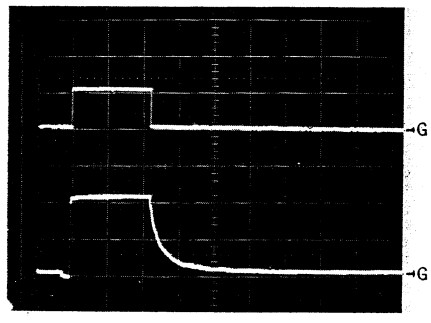

㉞ CH1: F+
㉟ CH2: F− 5V/div. 0.2S/div.
Focus close



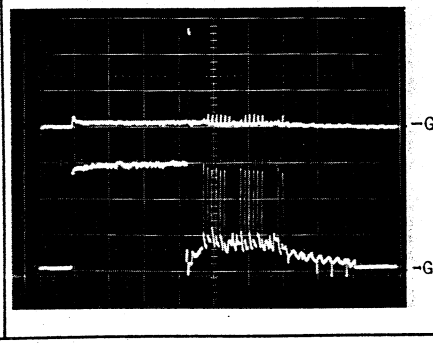

㉞ CH1: F+
㉟ CH2: F− 5V/div. 0.2S/div.
Search



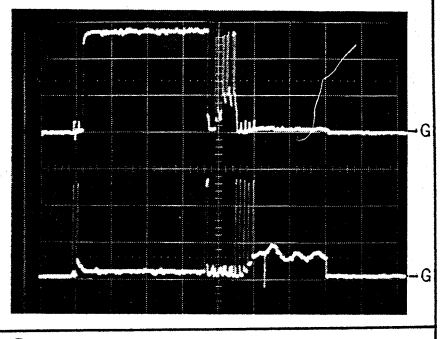

㊳ CH1: CONT 5V/div. 0.5S/div.
㊴ CH2: VD
Normal mode: Power ON/OFF



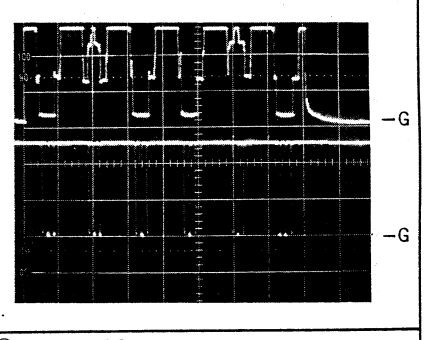

(36) CH1: C+
(37) CH2: C− 2V/div. 0.5S/div.
Normal mode: TNO23→TNO1 jump



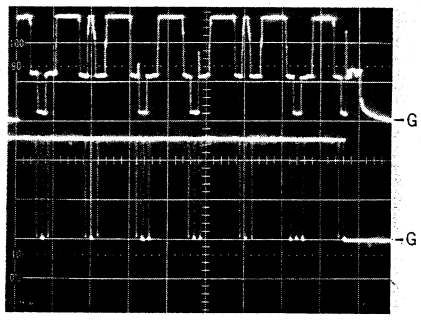

㊱ CH1: C+
㊲ CH2: C− 2V/div. 0.5S/div.
Normal mode: TNO1→TNO23 jump



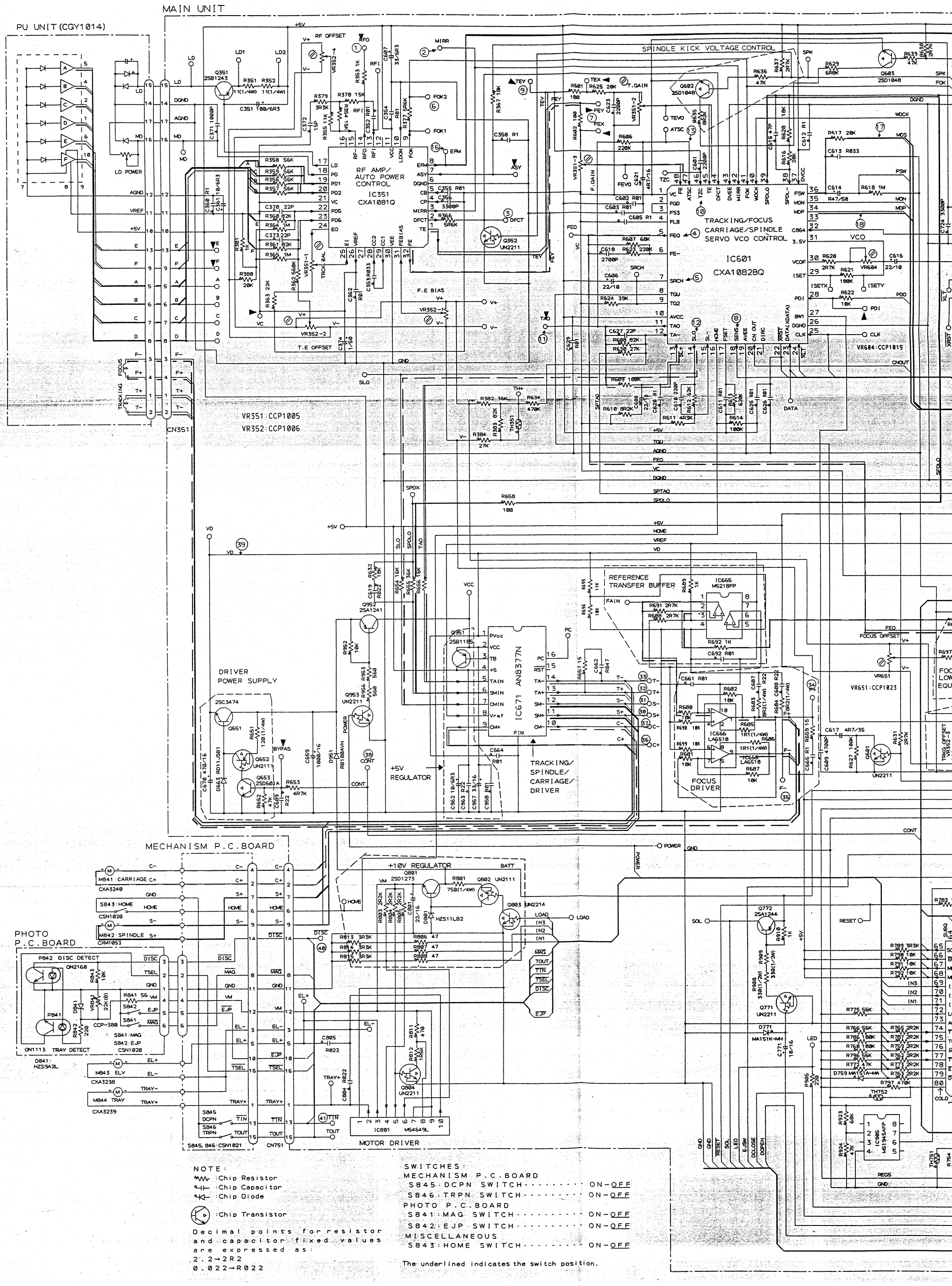

㊵ CH1: DISC
㊶ CH2: TIN 2V/div. 20ms/div.
Tray 1, 3, 4, 6: DISC (12cm DISC)
Tray 2, 5 : NO DISC




㊵ CH1: DISC
㊶ CH2: TIN 2V/div. 20ms/div.
Tray 1, 3, 4, 6: DISC (8cm DISC)
Tray 2,5 : NO DISC



# 4. SCHEMATIC CIRCUIT DIAGRAM (1)



SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE

IC701 CXD1167Q
DIGITAL SIGNAL PROCESSOR

DIGITAL FILTER
IC703 SM5807ES-M
IC712 TC4SU69F
D-A CONVERTER
IC704 LC7881KBM
IC705(1/2) UPC358G2
IC705(2/2) UPC358G2

ISOLATION AMP
ANALOG FILTER
IC706(1/2) M5218FP
IC706(2/2) M5218FP
IC707(1/2) M5218FP
IC707(2/2) M5218FP
MUTE

VREF BUFFER
IC655 1/2 M5218FP
IC655 2/2 M5218FP
FOCUS LOW END EQUALIZER
IC657 1/2 M5218FP
IC657 2/2 M5218FP
TRACKING LOW END EQUALIZER

+8V REGULATOR
+5V REGULATOR
D934:HZS2ALL
IC710(1/2) M5218FP
IC710 M5218FP
IC711 M5218FP
IC711(2/2) M5218FP
BALANCED CIRCUIT

IC751 PD4337A SYSTEM CONTROLLER
IC752 MSM82C51A-2GS
PHOTO-COUPLER IC753 ON3111

D701:MA151WA-MN
D702 MA151WA-MN

CN752
CN971
CN981

TO FILTER P.C.BOARD CN970
TO FILTER P.C.BOARD CN971

Fig. 37

# 5. SCHEMATIC CIRCUIT DIAGRAM (2)

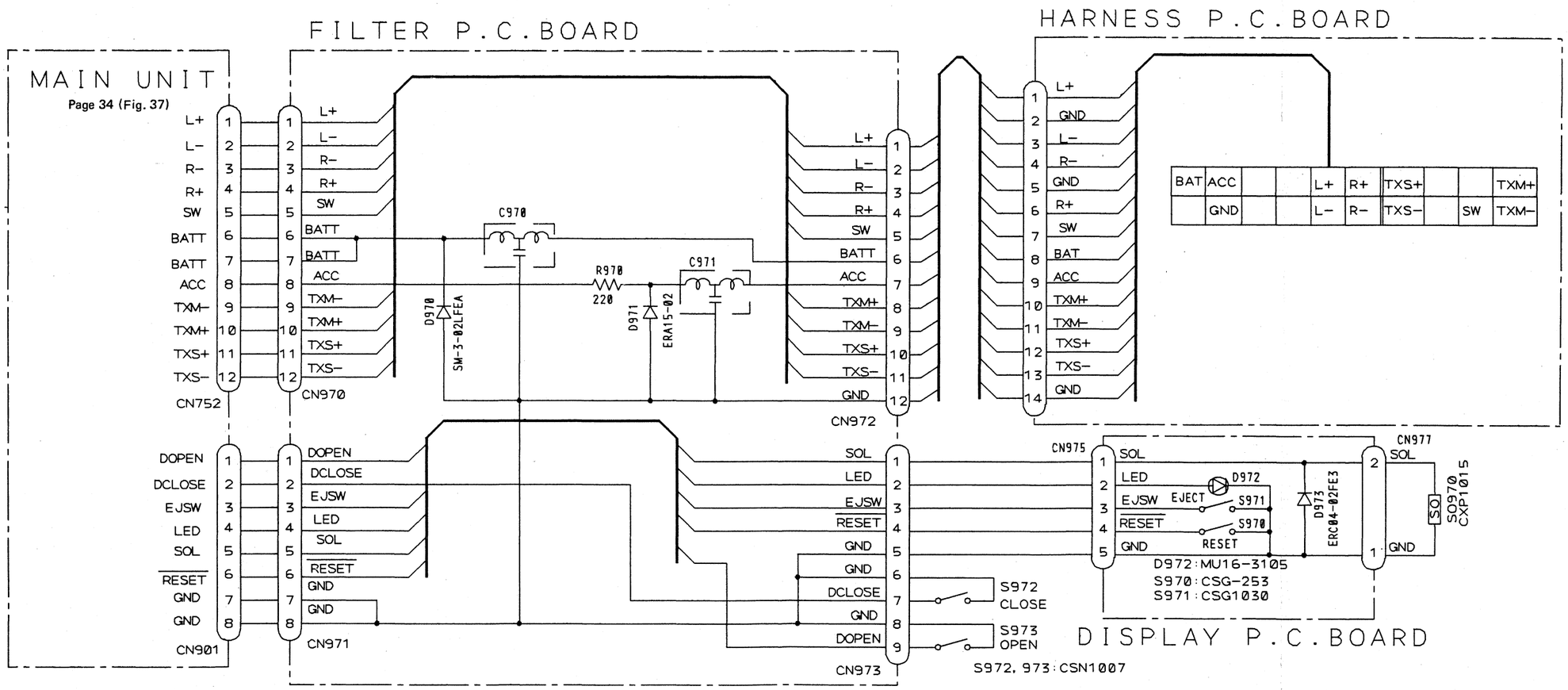



Fig. 38

# 6. CONNECTION DIAGRAM (1)

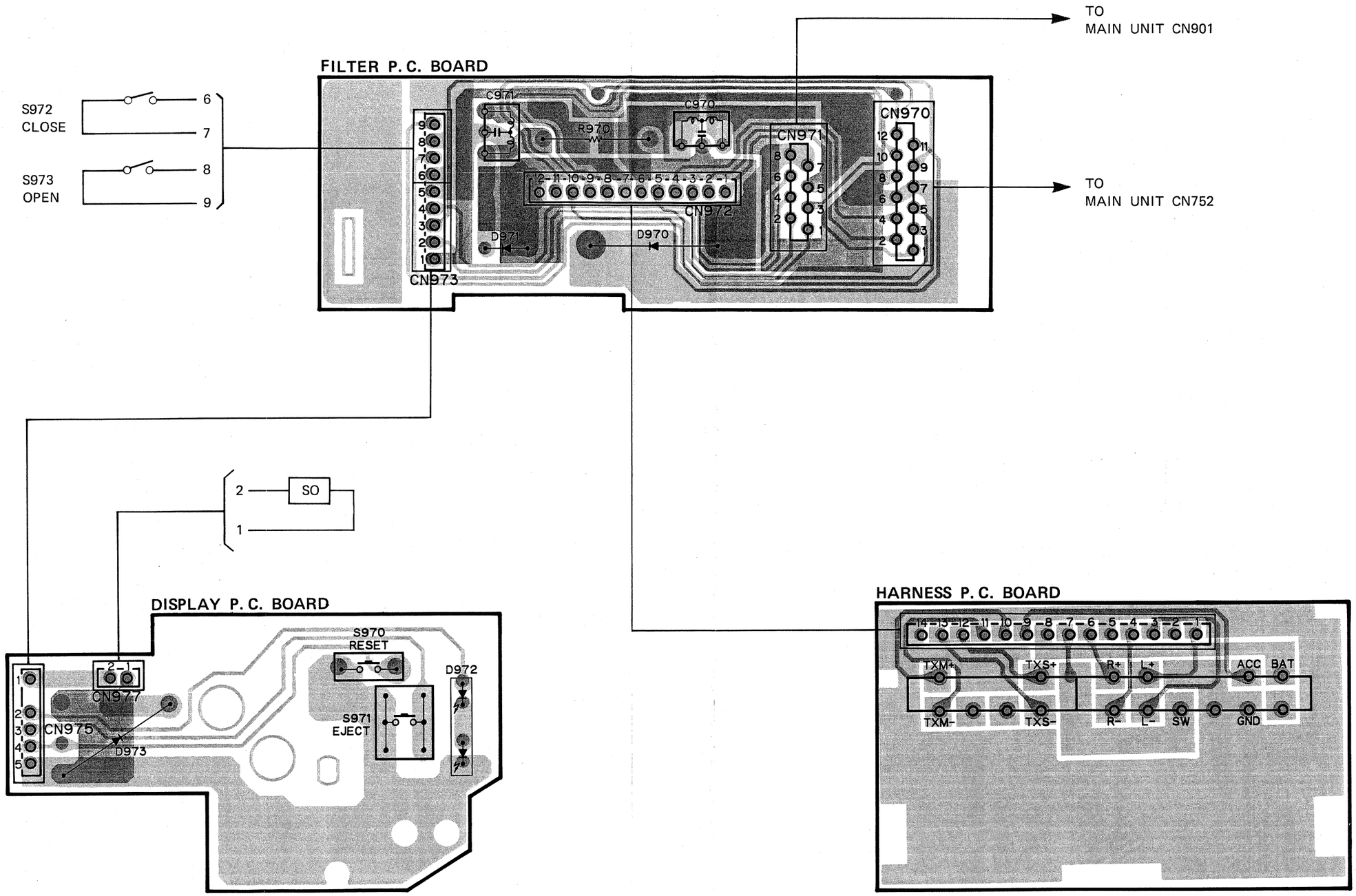
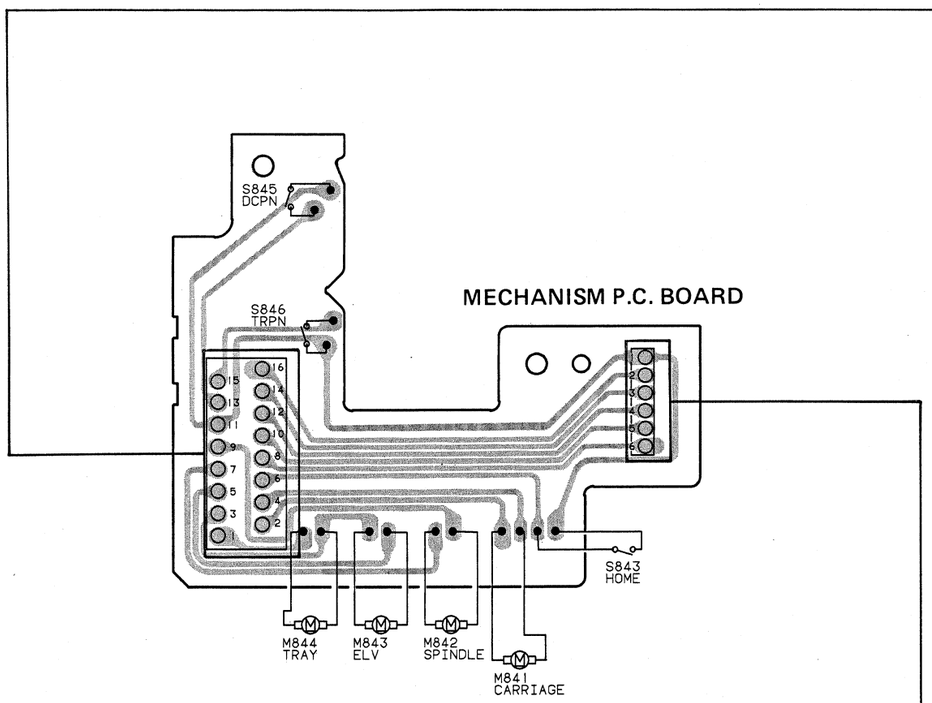
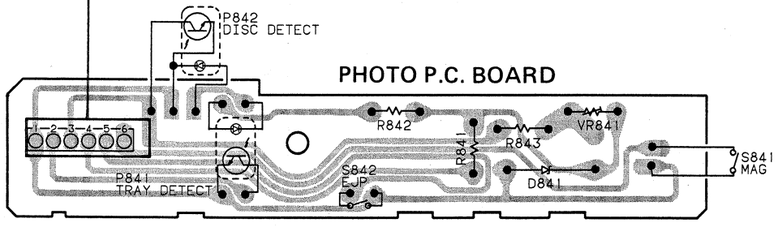



Fig. 39

# 7. CONNECTION DIAGRAM (2)



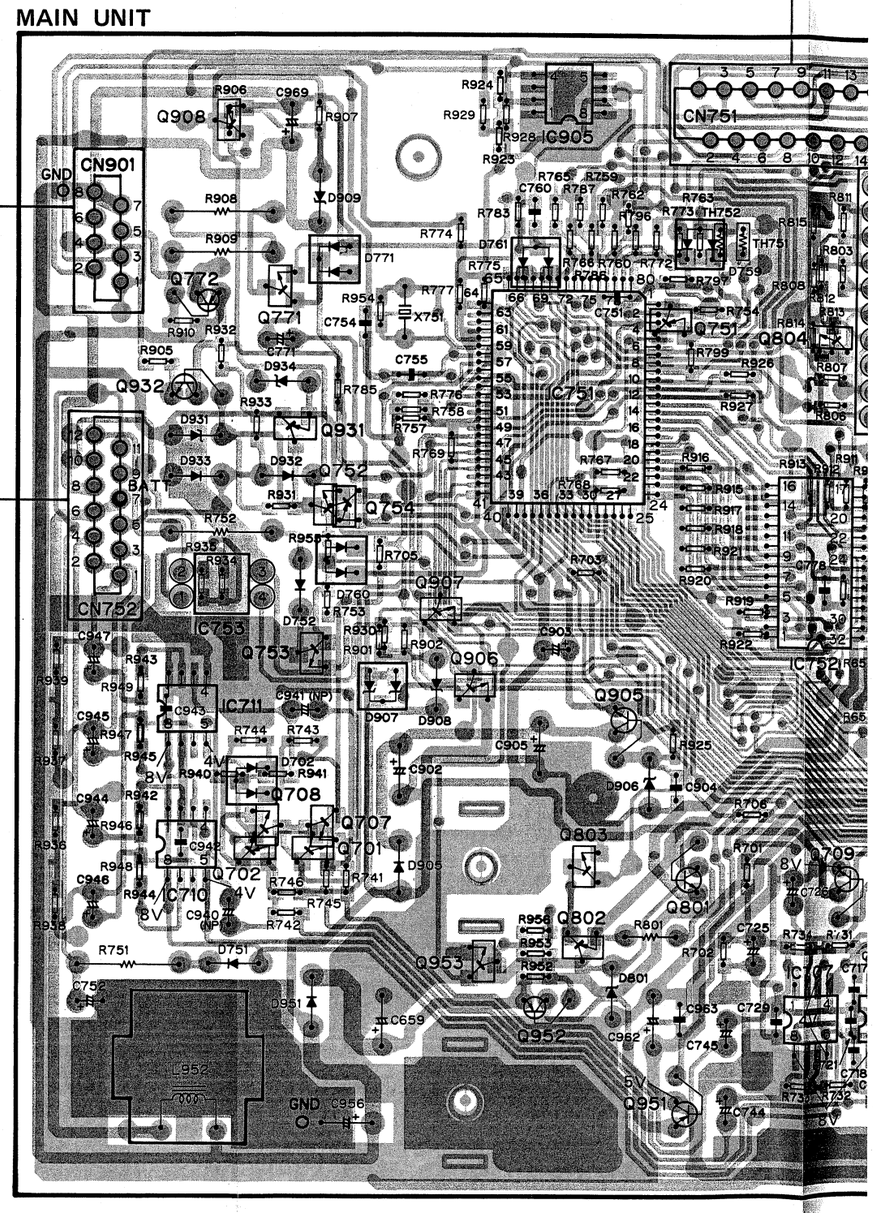



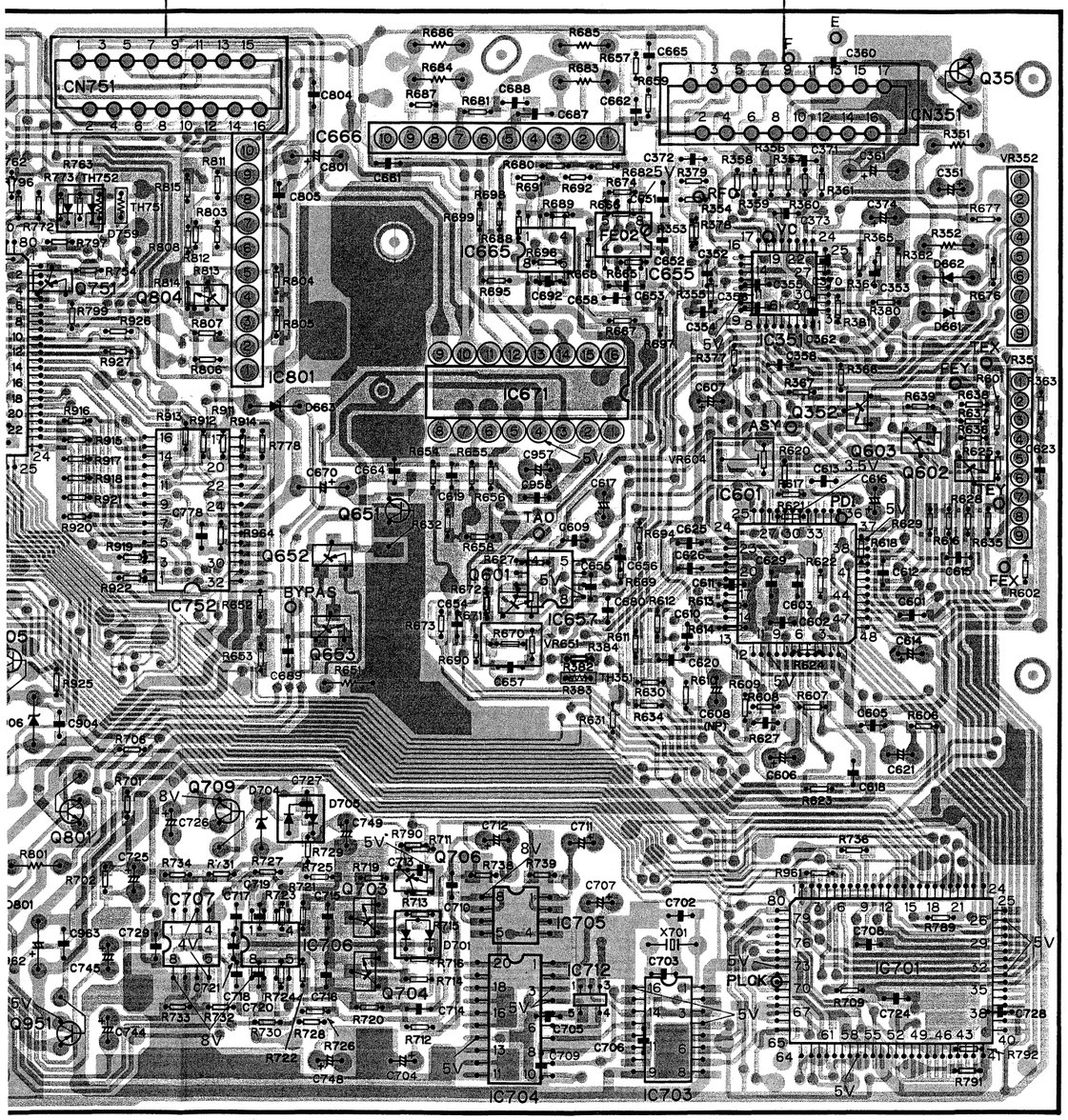

TO FILTER
P. C. BOARD CN971

TO FILTER
P. C. BOARD CN970

| IC. Q | ADJ |
|---|---|
| Q351 IC905 Q908 IC666 | |
| | VR352 |
| IC655 IC665 Q771 Q751 Q772 IC351 Q804 Q932 IC751 IC801 Q931 Q352 IC671 Q603 Q752 Q602 | VR604 |
| Q754 Q651 IC752 IC601 IC753 Q907 Q652 Q601 IC657 Q753 Q653 Q906 IC711 Q905 | VR351 |
| | VR651 |
| IC710 Q708 Q702 Q707 Q803 Q701 Q709 Q801 Q802 Q706 Q953 IC705 IC706 Q703 IC707 IC704 Q952 Q704 IC712 Q951 IC704 IC703 IC701 | |

MAIN UNIT






PU UNIT (CGY1014)

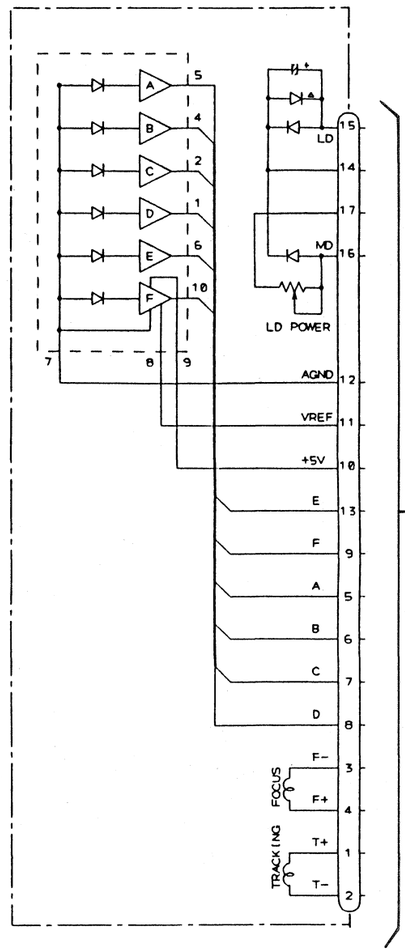



Fig. 40

# 8. CD MECHANISM EXPLODED VIEW

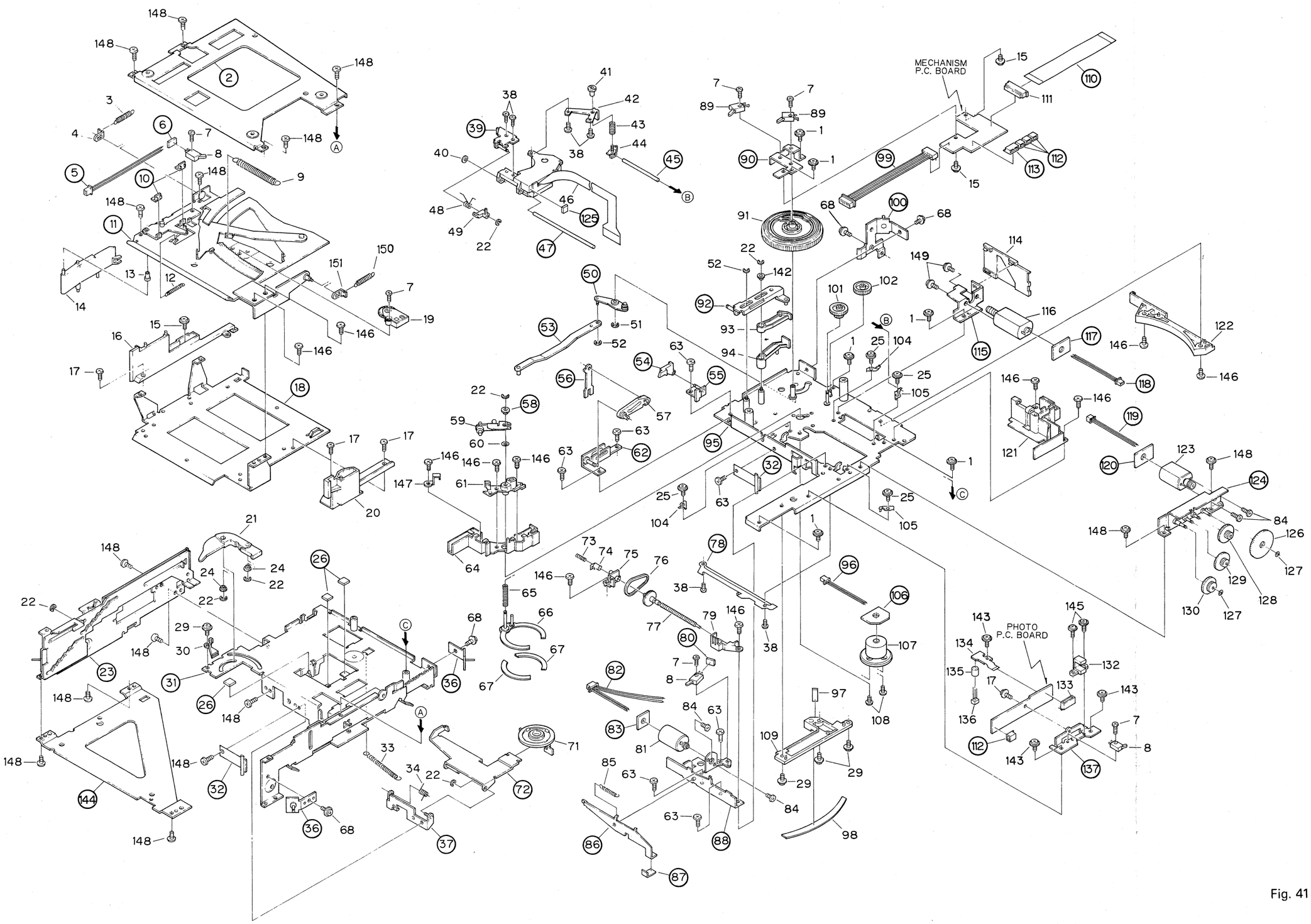



Fig. 41

## ● Parts List

*NOTE:*

- *The parts mark subject to refus*
- *Because the pa not spare parts,*

| Mark No. | Desc |
|---|---|
| 1 | Scre |
| 2 | Fram |
| 3 | Spri |
| 4 | Spri |
| 5 | Conn |
| 6 | P.C. |
| 7 | Scre |
| 8 | Swit |
| 9 | EJ S |
| 10 | Clam |
| 11 | Maga |
| 12 | Spri |
| 13 | Roll |
| 14 | Arm |
| 15 | Scre |
| 16 | Maga |
| 17 | Scre |
| 18 | Maga |
| 19 | Damp |
| 20 | Maga |
| 21 | Arm |
| 22 | Wash |
| 23 | Side |
| 24 | Roll |
| 25 | Scre |
| 26 | Cush |
| 27 | .... |
| 28 | .... |
| 29 | Scre |
| 30 | Arm |
| 31 | Chas |
| 32 | Tray |
| 33 | ELV |
| 34 | Spri |
| 35 | .... |

## ● Parts List

*NOTE:*

- *The parts marked with "◉" may need long time to supply and their supply is subject to refuse as the case may be.*
- *Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.*

| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|---|---|---|---|---|---|
| 1 | Screw | PMS20P030FMC | 36 | Bracket Unit | CXA3673 |
| 2 | Frame | CNC3455 | 37 | Bracket Unit | CXA3235 |
| 3 | Spring | CBH1324 | 38 | Screw | CBA1062 |
| 4 | Spring Holder | CNC3054 | 39 | Holder Unit | CXA1860 |
| 5 | Connector | CDE2701 | 40 | Cushion | CNV1863 |
| 6 | P.C.Board | CNP2328 | 41 | Screw | CLA1319 |
| 7 | Screw | CBA1070 | 42 | Holder | CNC1736 |
| 8 | Switch | CSN1020 | 43 | Spring | CBH1105 |
| 9 | EJ Spring | CBH1365 | 44 | Holder | CNV1512 |
| 10 | Clamper | CNV2375 | 45 | Shaft | CLA1196 |
| 11 | Magazine Holder Unit | CXA3821 | 46 | PU Unit | CGY1016 |
| 12 | Spring | CBH1320 | 47 | Shaft | CLA1197 |
| 13 | Roller | CLA1756 | 48 | Spring | CBH1106 |
| 14 | Arm | CNV2593 | 49 | Rack | CNV1513 |
| 15 | Screw | CBA1075 | 50 | Arm Unit | CXA3995 |
| 16 | Magazine Guide | CNV2369 | 51 | Washer | YE20FUC |
| 17 | Screw | CBA1077 | 52 | Washer | YE25FUC |
| 18 | Magazine Holder | CNC3039 | 53 | Lever Unit | CXA3542 |
| 19 | Damper Unit | CXA3242 | 54 | Arm | CNV2449 |
| 20 | Magazine Guide | CNV2368 | 55 | Bracket Unit | CXA3387 |
| 21 | Arm | CNV2352 | 56 | Lever | CNC3038 |
| 22 | Washer | YE15FUC | 57 | Cam Arm | CNV2354 |
| 23 | Side Frame Unit | CXA4273 | 58 | Disc UP Collar | CLA1895 |
| 24 | Roller | CLA1846 | 59 | Arm Unit | CXA4043 |
| 25 | Screw | PMS20P022FMC | 60 | Washer | CBE1027 |
| 26 | Cushion | CNM2555 | 61 | Guide | CNR1163 |
| 27 | ····· | | 62 | Bracket Unit | CXA3227 |
| 28 | ····· | | 63 | Screw | BMZ20P025FMC |
| 29 | Screw | CBA1080 | 64 | Holder | CNV2370 |
| 30 | Arm Guide | CNV2372 | 65 | Disc UP Spring | CBH1323 |
| 31 | Chassis Unit | CXA4274 | 66 | Disc UP Guide Unit | CXA3236 |
| 32 | Tray Stopper Unit | CXA3514 | 67 | Sheet | CNM2552 |
| 33 | ELV Spring | CBH1322 | 68 | Screw | PMS26P030FMC |
| 34 | Spring | CBH1321 | 69 | ····· | |
| 35 | ····· | | 70 | ····· | |



| Mark No. | Description | Part No. | Mark No. | Description | Part No. |
|---|---|---|---|---|---|
| 71 | Bracket Assy | CXA3788 | 111 | Connector | CKS1536 |
| 72 | Arm Unit | CXA3230 | 112 | Plug | CKS1049 |
| 73 | Spring | CBH1104 | 113 | Plug | CKS1051 |
| 74 | Spacer | CNV1844 | 114 | Holder | CNV2373 |
| 75 | CRG Holder | CNV2377 | 115 | Tray Bracket | CNC3598 |
| 76 | Belt | CNT1020 | 116 | Tray Motor Unit | CXA3729 |
| 77 | Screw Unit | CXA2375 | 117 | P.C.Board | CNP2303 |
| 78 | Shaft Cover | CXA3685 | 118 | Connector | CDE2703 |
| 79 | CRG Holder | CNV2378 | 119 | Connector | CDE2702 |
| 80 | P.C.Board | CNP1107 | 120 | P.C.Board | CNP2314 |
| 81 | Motor Unit(Carriage) | CXA3240 | 121 | Guide | CNV2376 |
| 82 | Connector | CDE2700 | 122 | Disc Guide | CNV2367 |
| 83 | P.C.Board | CNP2304 | 123 | Motor Unit(ELV) | CXA3238 |
| 84 | Screw | CBA-098 | 124 | ELV Bracket Unit | CXA3234 |
| 85 | Spring | CBH1335 | 125 | Cushion | CNT1023 |
| 86 | 8cm Guide Arm | CNC3154 | 126 | Gear | CNV2362 |
| 87 | Sheet | CNM2630 | 127 | Washer | CBF1038 |
| 88 | CRG Bracket | CNC3044 | 128 | Gear(Brack) | CNV2363 |
| 89 | Switch | CSN1021 | 129 | Gear(White) | CNV2371 |
| 90 | Cam Gear Bracket | CNC3045 | 130 | Gear(White) | CNV2364 |
| 91 | Cam Gear | CNV2357 | 131 | ····· | |
| 92 | Cam Lever Unit | CXA3232 | 132 | Photo-Interrupter | ON1113 |
| 93 | SW Arm | CNV2374 | 133 | Plug | CKS1053 |
| 94 | SW Arm | CNV2356 | 134 | P.C.Board | CNP2307 |
| 95 | Chassis Unit | CXA4011 | 135 | Spacer | CNV2365 |
| 96 | Connector | CDE2704 | 136 | Photo-Interrupter | ON2160 |
| 97 | Sheet | CNM2554 | 137 | TSEL Bracket | CNC3052 |
| 98 | Sheet | CNM2553 | 138 | ····· | |
| 99 | Connector | CDE2699 | 139 | ····· | |
| 100 | Bracket Unit | CXA4014 | 140 | ····· | |
| 101 | Wheel | CNV2359 | 141 | ····· | |
| 102 | Gear | CNV2360 | 142 | Roller | CLA1518 |
| 103 | ····· | | 143 | Screw | CBA1152 |
| 104 | Holder | CNC1738 | 144 | Frame | CNC3456 |
| 105 | Holder | CNC1739 | 145 | Screw | CBA1026 |
| 106 | P.C.Board | CNP2305 | 146 | Screw | CBA1054 |
| 107 | Motor Unit(Spindle) | CXM1053 | 147 | Spring | CBL1124 |
| 108 | Screw | HBA-258 | 148 | Screw | BMZ20P030FMC |
| 109 | Disc Guide | CNV2366 | 149 | Screw | PMS20P025FMC |
| 110 | Connector | CDE2705 | 150 | Spring | CBH1324 |
| | | | 151 | Holder | CNC3054 |

# 9. CHASSIS EXPLODED VIEW

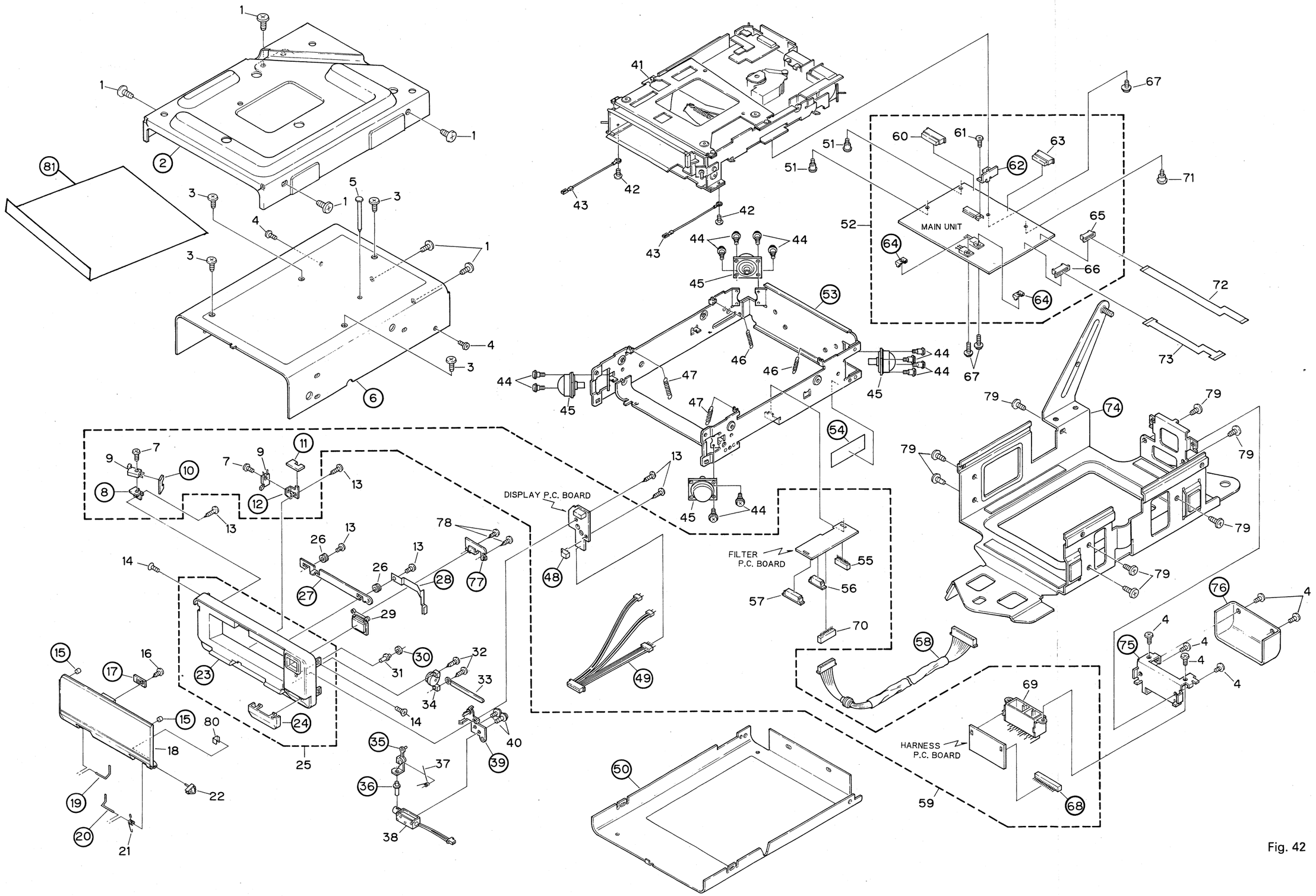



Fig. 42

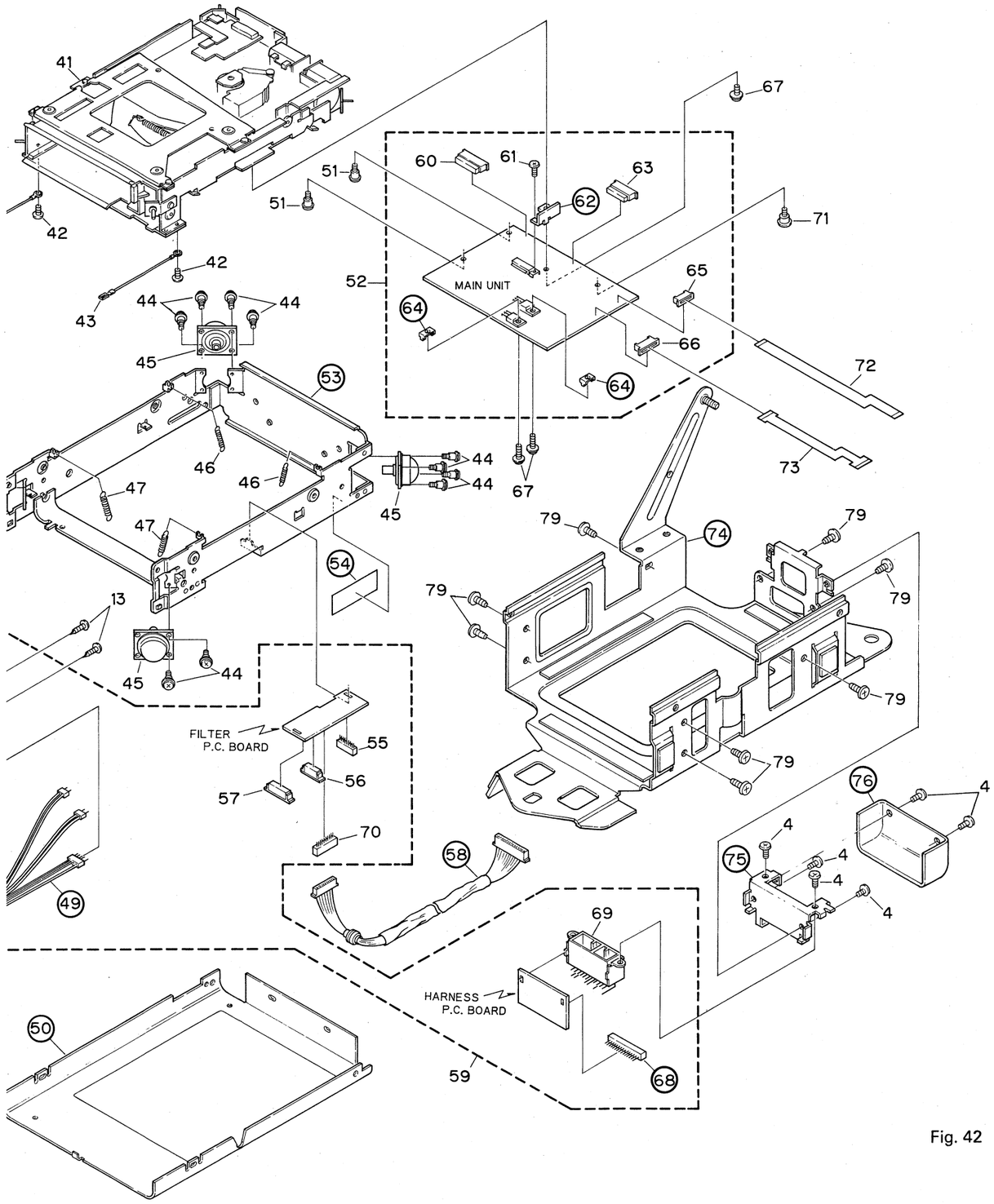



Fig. 42

## ● Parts List

| Mark | No. | Description | Part No. |
|---|---|---|---|
| | 1 | Screw | BMZ40P050FMC |
| | 2 | Cover Unit | CXA4162 |
| | 3 | Screw (M9071ZT-91) | BMZ40P100FRD |
| | 4 | Screw | BMZ30P060FMC |
| | 5 | Pin (M9071ZT-91) | CLA1862 |
| | 6 | Case | CNB1337 |
| | 7 | Screw | CBA1070 |
| | 8 | Holder | CNC3142 |
| | 9 | Switch | CSN1007 |
| | 10 | P.C. Board | CNP2613 |
| | 11 | P.C. Board | CNP2614 |
| | 12 | Holder | CNC3143 |
| | 13 | Screw | BPZ26P080FMC |
| | 14 | Screw | CMZ30P060FMC |
| | 15 | Cushion | CNM2828 |
| | 16 | Screw | BPZ20P080FZK |
| | 17 | Plate | CNC3411 |
| | 18 | Door | CAT1377 |
| | 19 | Shaft | CLA1713 |
| | 20 | Shaft | CLA1824 |
| | 21 | Spring | CBH1358 |
| | 22 | Gear | CNV2287 |
| | 23 | Grille | CNS1936 |
| | 24 | Grille Cover | CNS1942 |
| | 25 | Grille Unit | CXA3536 |
| | 26 | Collar | CLA1818 |
| | 27 | Lever | CNC3410 |
| | 28 | Conductor | CNC3345 |
| | 29 | Button | CAC2463 |
| | 30 | Cushion | CNM2628 |
| | 31 | Button | CAC2464 |
| | 32 | Screw | BPZ20P100FMC |
| | 33 | Cramper | HEF-102 |
| | 34 | Damper Unit | CXA3520 |
| | 35 | Arm Unit | CXA3532 |
| | 36 | Shaft | CLA1817 |
| | 37 | Spring | CBH1348 |
| | 38 | Solenoid | CXP1015 |
| | 39 | Holder Unit | CXA3531 |
| | 40 | Screw | PMS20P025FMC |

| Mark | No. | Description | Part No. |
|---|---|---|---|
| ◉ | 41 | CD Mechanism Unit | CXK2350 |
| | 42 | Screw | BMZ26P060FMC |
| | 43 | Connector | CDE2949 |
| | 44 | Screw | CBA1157 |
| | 45 | Damper | CNV2605 |
| | 46 | Spring | CBH1379 |
| | 47 | Spring | CBH1377 |
| | 48 | Plug | CKS1632 |
| | 49 | Connector | CDE2787 |
| | 50 | Case | CNB1325 |
| | 51 | Screw | CBA1158 |
| ◉ | 52 | Main Unit | CWX1365 |
| | 53 | Cassis Unit | CXA3530 |
| | 54 | Insulator | CNM2736 |
| | 55 | Plug | CKS1042 |
| | 56 | Connector | CKS1499 |
| | 57 | Connector | CKS1500 |
| | 58 | Connector | CDE3266 |
| ◉ | 59 | Sub Unit | CWM2543 |
| | 60 | Connector | CKS1537 |
| | 61 | Screw | JGZ17P050FNI |
| | 62 | Heat Sink | CNC3087 |
| | 63 | Connector | CKS1536 |
| | 64 | Bracket | CNC2377 |
| | 65 | Connector | CKS1390 |
| | 66 | Connector | CKS1392 |
| | 67 | Screw | PMS26P080FMC |
| | 68 | Plug | CKS-578 |
| | 69 | Connector | CKM1043 |
| | 70 | Plug | CKS1045 |
| | 71 | Screw | CBA1159 |
| | 72 | P.C. Board | CNP2361 |
| | 73 | P.C. Board | CNP2362 |
| | 74 | Bracket Unit | CXA4050 |
| | 75 | Holder | CNC3380 |
| | 76 | Cover | CNC3381 |
| | 77 | Holder | CNC3433 |
| | 78 | Screw | BMZ20P050FMC |
| | 79 | Screw | BMZ40P060FMC |
| | 80 | Spring | CNC3277 |
| | 81 | Plate (M9071ZT-91) | CNC3975 |

# 10. ELECTRICAL PARTS LIST

*NOTE:*

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*

*Chip Resistor*
*RS1/8S □□□J, RS1/10S □□□J*
*Chip Capacitor (except for CQS.....)*
*CKS....., CCS....., CSZS.....*

Unit Number :
Unit Name : Filter P.C. Board

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| D | 970 | | SM-3-02LFEA |
| D | 971 | | ERA15-02 |
| R | 970 | | RN1P221JL |
| C | 970 971 | | CCG1004 |

Unit Number :
Unit Name : Display P.C. Board

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| D | 972 | LED | MU16-3105 |
| D | 973 | | ERC04-02FE3 |
| S | 970 | Switch(RESET) | CSG-253 |
| S | 971 | Switch(EJECT) | CSG1030 |

Unit Number :
Unit Name : Main Unit

MISCELLANEOUS

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| IC | 351 | | CXA1081Q |
| IC | 601 | | CXA1082BQ |
| IC | 655 657 665 706 707 710 711 | | M5218FP |
| IC | 666 | | LA6510 |
| IC | 671 | | AN8377N |
| IC | 701 | | CXD1167Q |
| IC | 703 | | SM5807ES-M |
| IC | 704 | | LC7881MBM |
| IC | 705 | | UPC358G2 |
| IC | 712 | | TC4SU69F |
| IC | 751 | | PD4337A |
| IC | 752 | | MSM82C51A-2GS |
| IC | 753 | | ⊖N3111 |
| IC | 801 | | M54649L |
| IC | 905 | | M51945AFP |
| Q | 351 | | 2SB1243 |
| Q | 352 804 953 | Chip Transistor | UN2211 |
| Q | 601 752 771 906 | Chip Transistor | UN2211 |
| Q | 602 603 707 708 | Chip Transistor | 2SD1048 |
| Q | 651 | | 2SC3474 |
| Q | 652 | Chip Transistor | UN2111 |
| Q | 653 | Chip Transistor | 2SD601A |
| Q | 701 803 | Chip Transistor | UN2214 |
| Q | 702 751 | Chip Transistor | UN2111 |
| Q | 703 704 | Chip Transistor | UN2215 |
| Q | 706 754 802 | Chip Transistor | UN2111 |
| Q | 709 932 | | 2SD1859 |
| Q | 753 | Chip Transistor | 2SD601A |
| Q | 772 | | 2SA1244 |
| Q | 801 | | 2SD1273 |
| Q | 905 | | 2SC3673 |
| Q | 907 908 | Chip Transistor | 2SD601A |
| Q | 931 | Chip Transistor | 2SA1162 |
| Q | 951 | | 2SB1185 |
| Q | 952 | | 2SA1241 |
| D | 661 662 934 | | HZS2ALL |
| D | 663 | | RD11JSB1 |
| D | 701 | Chip Diode | MA151WA-MN |
| D | 702 | Chip Diode | MA151WA-MN |
| D | 704 931 | | RD7R5JSB2 |
| D | 705 | Chip Diode | MA153-MC |
| D | 751 752 905 932 | 933 | ERA15-02VH |
| D | 759 760 761 | Chip Diode | MA151A-MA |
| D | 771 | Chip Diode | MA151K-MH |
| D | 801 | | HZS11LB2 |
| D | 906 | | HZS6LB1 |
| D | 907 | Chip Diode | MA3200M |
| D | 908 909 | | HZS7LB1 |
| D | 951 | | RB100AVH |
| L | 952 | Choke Coil | CTH1074 |
| TH | 351 | Thermister | CCX1006 |
| TH | 751 | Thermister | CCX1007 |
| X | 701 | Crystal Resonator | CSS1052 |
| X | 751 | | CSS1036 |
| VR | 351 | Semi-fixed | CCP1005 |
| VR | 352 | Semi-fixed | CCP1006 |
| VR | 604 | Semi-fixed | CCP1015 |
| VR | 651 | Semi-fixed | CCP1023 |

RESISTORS

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| R | 351 352 | | RD1/4PS110JL |
| R | 353 381 689 783 910 936 | | RS1/10S102J |
| R | 354 378 701 702 | | RS1/10S153J |
| R | 355 | | RS1/10S113J |
| R | 356 357 358 359 | | RS1/10S563J |
| R | 360 361 608 | | RS1/10S823J |
| R | 362 | | RS1/10S564J |
| R | 363 | | RS1/10S223J |
| R | 364 365 618 671 954 | | RS1/10S105J |
| R | 366 377 | | RS1/10S562J |
| R | 367 628 | | RS1/10S183J |
| R | 379 705 | | RS1/10S332J |
| R | 380 617 625 | | RS1/10S203J |
| R | 382 667 | | RS1/10S363J |
| R | 383 | | RS1/10S823J |
| R | 384 | | RS1/10S273J |
| R | 601 602 658 | | RS1/10S101J |
| R | 606 940 941 | | RS1/10S224J |
| R | 607 | | RS1/10S683J |
| R | 609 614 627 758 760 767 768 774 | | RS1/10S104J |
| R | 610 709 | | RS1/10S822J |
| R | 611 | | RS1/10S432J |
| R | 612 | | RS1/10S623J |
| R | 613 | | RS1/10S624J |
| R | 616 | | RS1/10S203J |
| R | 620 631 637 638 691 | | RS1/10S272J |
| R | 621 | | RS1/10S184J |
| R | 622 670 680 681 682 791 792 | | RS1/10S103J |
| R | 623 | | RS1/10S224J |
| R | 624 666 | | RS1/10S393J |
| R | 629 | | RS1/10S682J |
| R | 630 | | RS1/10S273J |
| R | 632 | | RS1/10S183J |
| R | 634 | | RS1/10S474J |
| R | 635 694 | | RS1/10S822J |
| R | 636 639 673 906 924 942 943 944 945 | | RS1/10S473J |
| R | 651 | | RD1/4PS121JL |
| R | 652 697 725 726 772 902 | | RS1/10S473J |
| R | 653 | | RS1/10S472J |
| R | 654 656 | | RS1/10S163J |
| R | 655 | | RS1/10S363J |
| R | 657 | | RS1/10S150J |
| R | 659 | | RS1/10S150J |
| R | 665 935 | | RS1/10S562J |
| R | 668 | | RS1/10S183J |
| R | 669 766 769 775 796 928 | | RS1/10S563J |
| R | 672 | | RS1/10S364J |
| R | 674 | | RS1/10S133J |
| R | 676 | | RS1/10S201J |
| R | 677 | | RS1/10S201J |
| R | 683 684 | | RD1/4PS8R2JL |
| R | 685 686 | | RD1/4PS1R1JL |
| R | 687 790 799 932 952 955 | | RS1/10S103J |
| R | 688 690 | | RS1/10S272J |
| R | 692 738 739 741 742 | | RS1/10S102J |
| R | 695 | | RS1/10S113J |
| R | 696 698 699 | | RS1/10S103J |
| R | 703 | | RS1/10S513J |
| R | 706 931 | | RS1/10S681J |
| R | 711 712 | | RS1/10S511J |
| R | 713 714 | | RS1/10S181J |
| R | 715 716 | | RS1/10S244J |
| R | 719 720 | | RS1/10S392J |
| R | 721 722 723 724 | | RS1/10S362J |
| R | 727 728 729 730 731 732 | | RS1/10S472J |
| R | 733 734 | | RS1/10S622J |
| R | 736 | | RS1/10S104J |
| R | 743 744 785 | | RS1/10S222J |
| R | 745 746 | | RS1/10S333J |
| R | 751 752 | | RS1/2P121JL |
| R | 753 933 | | RS1/10S223J |
| R | 754 | | RS1/10S752J |
| R | 757 759 762 763 765 773 776 787 803 804 | | RS1/10S222J |
| R | 777 778 786 901 907 911 912 913 914 915 | | RS1/10S104J |
| R | 789 | | RS1/10S332J |
| R | 797 | | RS1/10S474J |
| R | 801 | | RD1/4PS751JL |
| R | 805 926 927 930 | | RS1/10S222J |
| R | 806 807 | | RS1/10S470J |
| R | 808 | | RS1/10S470J |
| R | 811 | | RS1/10S471J |
| R | 812 | | RS1/10S152J |
| R | 813 814 815 | | RS1/10S332J |
| R | 905 | | RS1/10S221J |
| R | 908 909 | | RS1/2P331JL |
| R | 916 917 918 919 920 921 922 961 964 | | RS1/10S104J |
| R | 923 | | RS1/10S683J |
| R | 925 | | RS1/10S153J |
| R | 929 | | RS1/10S333J |
| R | 934 | | RS1/10S331J |
| R | 937 938 939 | | RS1/10S102J |
| R | 946 947 948 949 | | RS1/10S221J |
| R | 953 956 | | RS1/10S561J |

CAPACITORS

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| C | 351 704 707 903 | | CEA101M6R3LL |
| C | 352 354 652 680 710 721 729 904 | | CKSQYB103K50 |
| C | 353 613 654 | | CKSQYB333K25 |
| C | 355 362 602 603 611 625 626 629 661 664 | | CKSQYB103K50 |
| C | 356 724 | | CKSQYB332K50 |
| C | 358 605 656 658 727 | | CKSQYB104K25 |
| C | 360 612 620 665 701 | | CKSQYB104K25 |
| C | 361 962 | | CASA100M6R3 |
| C | 370 373 | | CCSQCH220J50 |
| C | 371 708 | | CKSQYB102K50 |
| C | 372 | | CCSQCH150J50 |
| C | 374 | | CEA010M50LL |
| C | 601 | | CKSQYB222K50 |
| C | 606 616 748 749 | | CEA220M10LL |
| C | 607 | | CEA330M6R3LL |
| C | 608 | | CEA220M10NPLL |
| C | 609 760 | | CKSQYB472K50 |
| C | 610 | | CCSQCH221J50 |
| C | 614 | | CEAR47M50LL |
| C | 615 | | CCSQCH470J50 |
| C | 617 | | CEA4R7M35LL |
| C | 618 | | CKSQYB272K50 |
| C | 619 | | CKSQYB223K50 |
| C | 621 | | CEA4R7M16NPLL |
| C | 623 | | CKSQYB222K50 |
| C | 627 | | CCSQCH220J50 |
| C | 651 653 687 689 963 | | CKSYB224K25 |
| C | 655 | | CCSQSL681J50 |
| C | 657 | | CKSQYB393K25 |
| C | 659 902 905 | 1000μF/16V | CCH1003 |
| C | 662 | | CKSQYB473K25 |
| C | 670 | 470μF/16V | CCH1080 |
| C | 688 | | CKSYB224K25 |
| C | 692 705 706 709 728 751 778 942 943 958 | | CKSQYB103K50 |
| C | 702 703 | | CCSQCH090D50 |
| C | 711 712 | | CEA220M6R3LS |
| C | 713 714 | | CKSQYB683K25 |
| C | 715 716 717 718 719 720 | | CCSQCH122J50 |
| C | 725 771 | | CEA100M16LL |
| C | 726 | | CEA101M10LL |
| C | 744 745 | | CEA330M10LS |
| C | 752 | | CEA330M10LL |
| C | 754 755 | | CCSQCH101J50 |
| C | 801 | | CASA220M16 |
| C | 804 805 | | CKSQYB223K50 |
| C | 940 941 | | |
| C | 944 945 | | |
| C | 956 | | |
| C | 957 | | |
| C | 969 | | |

Unit Number :
Unit Name : Mech

Unit Number :
Unit Name : Phot

Miscellaneous Parts

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| S | 972 973 | | |
| SO | 970 | | |

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| R | 384 | | RS1/10S273J |
| R | 601 602 658 | | RS1/10S101J |
| R | 606 940 941 | | RS1/10S224J |
| R | 607 | | RS1/10S683J |
| R | 609 614 627 758 760 767 768 774 | | RS1/10S104J |
| R | 610 709 | | RS1/10S822J |
| R | 611 | | RS1/10S432J |
| R | 612 | | RS1/10S623J |
| R | 613 | | RS1/10S624J |
| R | 616 | | RS1/10S203J |
| R | 620 631 637 638 691 | | RS1/10S272J |
| R | 621 | | RS1/10S184J |
| R | 622 670 680 681 682 791 792 | | RS1/10S103J |
| R | 623 | | RS1/10S224J |
| R | 624 666 | | RS1/10S393J |
| R | 629 | | RS1/10S682J |
| R | 630 | | RS1/10S273J |
| R | 632 | | RS1/10S183J |
| R | 634 | | RS1/10S474J |
| R | 635 694 | | RS1/10S822J |
| R | 636 639 673 906 924 942 943 944 945 | | RS1/10S473J |
| R | 651 | | RD1/4PS121JL |
| R | 652 697 725 726 772 902 | | RS1/10S473J |
| R | 653 | | RS1/10S472J |
| R | 654 656 | | RS1/10S163J |
| R | 655 | | RS1/10S363J |
| R | 657 | | RS1/10S150J |
| R | 659 | | RS1/10S150J |
| R | 665 935 | | RS1/10S562J |
| R | 668 | | RS1/10S183J |
| R | 669 766 769 775 796 928 | | RS1/10S563J |
| R | 672 | | RS1/10S364J |
| R | 674 | | RS1/10S133J |
| R | 676 | | RS1/10S201J |
| R | 677 | | RS1/10S201J |
| R | 683 684 | | RD1/4PS8R2JL |
| R | 685 686 | | RD1/4PS1R1JL |
| R | 687 790 799 932 952 955 | | RS1/10S103J |
| R | 688 690 | | RS1/10S272J |
| R | 692 738 739 741 742 | | RS1/10S102J |
| R | 695 | | RS1/10S113J |
| R | 696 698 699 | | RS1/10S103J |
| R | 703 | | RS1/10S513J |
| R | 706 931 | | RS1/10S681J |
| R | 711 712 | | RS1/10S511J |
| R | 713 714 | | RS1/10S181J |
| R | 715 716 | | RS1/10S244J |
| R | 719 720 | | RS1/10S392J |
| R | 721 722 723 724 | | RS1/10S362J |
| R | 727 728 729 730 731 732 | | RS1/10S472J |
| R | 733 734 | | RS1/10S622J |
| R | 736 | | RS1/10S104J |
| R | 743 744 785 | | RS1/10S222J |
| R | 745 746 | | RS1/10S333J |
| R | 751 752 | | RS1/2P121JL |
| R | 753 933 | | RS1/10S223J |
| R | 754 | | RS1/10S752J |
| R | 757 759 762 763 765 773 776 787 803 804 | | RS1/10S222J |
| R | 777 778 786 901 907 911 912 913 914 915 | | RS1/10S104J |
| R | 789 | | RS1/10S332J |
| R | 797 | | RS1/10S474J |
| R | 801 | | RD1/4PS751JL |
| R | 805 926 927 930 | | RS1/10S222J |
| R | 806 807 | | RS1/10S470J |
| R | 808 | | RS1/10S470J |

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| R | 811 | | RS1/10S471J |
| R | 812 | | RS1/10S152J |
| R | 813 814 815 | | RS1/10S332J |
| R | 905 | | RS1/10S221J |
| R | 908 909 | | RS1/2P331JL |
| R | 916 917 918 919 920 921 922 961 964 | | RS1/10S104J |
| R | 923 | | RS1/10S683J |
| R | 925 | | RS1/10S153J |
| R | 929 | | RS1/10S333J |
| R | 934 | | RS1/10S331J |
| R | 937 938 939 | | RS1/10S102J |
| R | 946 947 948 949 | | RS1/10S221J |
| R | 953 956 | | RS1/10S561J |

CAPACITORS

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| C | 351 704 707 903 | | CEA101M6R3LL |
| C | 352 354 652 680 710 721 729 904 | | CKSQYB103K50 |
| C | 353 613 654 | | CKSQYB333K25 |
| C | 355 362 602 603 611 625 626 629 661 664 | | CKSQYB103K50 |
| C | 356 724 | | CKSQYB332K50 |
| C | 358 605 656 658 727 | | CKSQYB104K25 |
| C | 360 612 620 665 701 | | CKSQYB104K25 |
| C | 361 962 | | CASA100M6R3 |
| C | 370 373 | | CCSQCH220J50 |
| C | 371 708 | | CKSQYB102K50 |
| C | 372 | | CCSQCH150J50 |
| C | 374 | | CEA010M50LL |
| C | 601 | | CKSQYB222K50 |
| C | 606 616 748 749 | | CEA220M10LL |
| C | 607 | | CEA330M6R3LL |
| C | 608 | | CEA220M10NPLL |
| C | 609 760 | | CKSQYB472K50 |
| C | 610 | | CCSQCH221J50 |
| C | 614 | | CEAR47M50LL |
| C | 615 | | CCSQCH470J50 |
| C | 617 | | CEA4R7M35LL |
| C | 618 | | CKSQYB272K50 |
| C | 619 | | CKSQYB223K50 |
| C | 621 | | CEA4R7M16NPLL |
| C | 623 | | CKSQYB222K50 |
| C | 627 | | CCSQCH220J50 |
| C | 651 653 687 689 963 | | CKSYB224K25 |
| C | 655 | | CCSQSL681J50 |
| C | 657 | | CKSQYB393K25 |
| C | 659 902 905 | 1000μF/16V | CCH1003 |
| C | 662 | | CKSQYB473K25 |
| C | 670 | 470μF/16V | CCH1080 |
| C | 688 | | CKSYB224K25 |
| C | 692 705 706 709 728 751 778 942 943 958 | | CKSQYB103K50 |
| C | 702 703 | | CCSQCH090D50 |
| C | 711 712 | | CEA220M6R3LS |
| C | 713 714 | | CKSQYB683K25 |
| C | 715 716 717 718 719 720 | | CCSQCH122J50 |
| C | 725 771 | | CEA100M16LL |
| C | 726 | | CEA101M10LL |
| C | 744 745 | | CEA330M10LS |
| C | 752 | | CEA330M10LL |
| C | 754 755 | | CCSQCH101J50 |
| C | 801 | | CASA220M16 |
| C | 804 805 | | CKSQYB223K50 |

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| C | 940 941 | | CEA010M50NPLL |
| C | 944 945 946 947 | | CEA470M10LL |
| C | 956 | 470μF/16V | CCH1080 |
| C | 957 | | CEA330M16LL |
| C | 969 | | CEA101M50L2 |

Unit Number :
Unit Name : Mechanism P.C.Board

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| M | 841 | Motor Unit(Carriage) | CXA3240 |
| M | 842 | Motor Unit(Spindle) | CXM1053 |
| M | 843 | Motor Unit(ELV) | CXA3238 |
| M | 844 | Motor Unit(Tray) | CXA3729 |
| S | 843 | Switch(Home) | CSN1020 |
| S | 845 846 | Switch(DCPN, TRPN) | CSN1021 |

Unit Number :
Unit Name : Photo-P.C.Board

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| D | 841 | | HZS9A2L |
| S | 841 842 | Switch(MAG, EJP) | CSN1020 |
| VR | 841 | Semi-fixed 22kΩ(B) | CCP-380 |
| P | 841 | Photo-Interrupter | ON1113 |
| P | 842 | Photo-Interrupter | ON2160 |
| R | 841 | | RD1/4PS560JL |
| R | 842 | | RD1/4PS221JL |
| R | 843 | | RD1/4PS103JL |

Miscellaneous Parts List

| Mark | Circuit Symbol & No. | Part Name | Part No. |
|---|---|---|---|
| | | PU Unit | CGY1016 |
| S | 972 973 | Switch(CLOSE, OPEN) | CSN1007 |
| SO | 970 | Solenoid | CXP1015 |